The Builder.

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ILLUSTRATIONS.

East Window, All Saints' Chapel, St. Chad's, Gateshead .....By Miss Caroline C. Townshend.
Westbury Abbey, Bucks .....Mr. Clyde Young, A.R.I.B.A., Architect.
Front in Tottenham Court-road / Front in Oxford-street and North Audley-street .....Messrs. Read & Macdonald, Architects.
House at Headingley, Leeds .....The late F. W. Bedford, F.R.I.B.A., Architect.

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An Appeal to the Profession.

As we mentioned last week, the Institute of Architects has so far advanced from its non-committal attitude in regard to the question of the ownership of architects' drawings, raised in the case of Gibbon *v.* Pease, as to have passed a resolution to follow the lead of the Surveyors' Institution in promising a contribution of 100*l.* towards the cost of endeavouring to get a reversion of the verdict, or an order for a new trial, in the Court of Appeal. But we think that a direct appeal should be made to the profession at large to assist in this matter.

The Court of Appeal, should its decision be favourable to the defendant's case, may, if we understand rightly, take one of two courses; it may either overrule the precedent of Ebdy *v.* McGowan and decide that it does not apply, or it may order a new trial on the ground that the evidence on one side was not heard. The former would be of course the far more satisfactory as well as the least costly result, but the latter is the more probable; and in that case the pecuniary support promised by the two representative professional Societies would probably fall very far short of what would be required to carry out the campaign.

On this consideration, we revert to the suggestion made a week or two back by our correspondent "A Provincial Architect," that we should open a fund for assisting the defendant in this action to obtain a reversal of a legal decision which, if it is allowed to stand, will involve a most serious injury to the interests and prestige of architects. We wish architects clearly to realise that, by the law as it is now apparently to be interpreted, *any client may claim all the architect's drawings, and specification, and sketches and memoranda in reference to a building as his own property*, and may, if he be so minded, bring the architect into court and obtain an order on him to give them all up. This state of things affects, or may affect, most prejudicially every architect in the United Kingdom, and nothing ought to be left undone to get it altered. On this ground therefore we beg to say that we shall be glad to act on the suggestion made by "A Provincial Architect," that the editor of this journal should invite and take charge of subscriptions to be applied towards the cost of obtaining a definite decision in reversal of the present assumed reading of the law in regard to the ownership of architects' drawings. A special bank account would be opened for the fund, and a full report published subsequently as to the receipts and application of the fund. The Provincial Architect whose letter we published backed his suggestion by a cheque for five guineas; how many will follow his example?

We said just now the "assumed" state of the law, because we think that the decisions which have caused so much consternation to architects are really the result of a reading of the judgment in Ebdy *v.* McGowan apart from the circumstances and the evidence. We have been told by lawyers, in the most positive manner, that the judgment in that case affirmed the client's property in the drawings without any reservation whatever. So it does if you read it alone; but surely the logical interpretation is to read it in connexion with and in relation to the evidence and the circumstances of the case, which was one in which drawings were completed and the building not carried out; and we do not think the ruling logically goes any further than to cover that particular case.

If it does; if it is to be upheld that Ebdy *v.* McGowan covers every case and gives the client the ownership of all drawings, then we say that such a law could only have been passed under the influence of a misunderstanding of the architect's profession on the part of those who administered the law, and that we must get this point pressed upon those high authorities who have the power to order a revision of the law. For this purpose it might be necessary to take the matter ultimately before the House of Lords; which is all the more reason for being prepared with the sinews of war. We are told by lawyers (some of them—for lawyers differ like other mortals) that the House of Lords would not be likely to reverse a law which has stood accepted for so long a period—reckoning from Ebdy *v.* McGowan. We reply, that it has only been tacitly accepted through ignorance of the fact, and that few or no architects had any conception that such a sword of Damocles hung over their heads: Then there is the example given by the law in other countries. In both France and Germany the practice is for the architect to keep the drawings; there are certain reservations, which we have not space to go into just now, under which the client may ask for copies of the drawings or of part of them, but only either under special restrictions or by special payment over and above the fee for carrying out the building. No other country permits the architect to be ridden over and his rights trampled on as our law, if correctly interpreted, does; and if it does stand so, it is time it were altered.

THE CARE OF ANCIENT MONUMENTS.

By Professor Baldwin Brown.

II.

IN the last paper some notice was taken of the popular movement on the Continent for the protection of buildings of historical and artistic interest. In the present article it will be seen how foreign States endeavour to compass the end in view through official agencies such as Monument Commissions, and how some continental cities safeguard their historical aspect by special building regulations. The subject of State Monument Acts, with the contrast between our own legislation and that of our neighbours across the sea, will occupy the third paper of this brief series.

In almost all continental countries the normal system of monument administration centres in a State-appointed Commission, that serves as a council for the Minister under whom is placed the department of the Fine Arts. The Minister in question may be Minister of the Interior, or of Religion and Education, or of Public Works, but there will always be some responsible head of a public department who takes historical and artistic monuments under his charge. He is the executive officer in any question relating to this subject, but acts always after taking the opinion of his Commissioners. The Commission, on the other side, is served by a body of inspectors and local correspondents, and sometimes by trained architects, who supply it, as it were, with eyes and hands. In certain countries, as in Switzerland, the already existing council of some proved antiquarian body of national scope is charged with the functions of a State Commission, while in others a Commission is made up for the purpose from known experts in historical and artistic studies. Many of these Commissions are of old standing. That of France, the "Commission des Monuments Historiques," dates from 1837. The "Central Commission for the Investigation and Maintenance of Artistic and Historical Monuments," of the Austrian Empire, may serve as a type of the rest. This was founded in 1850, but received in 1873 the form which, with certain alterations in 1899, it now possesses. There are twenty members chosen for five years, and the service is an honorary one. They are aided by a staff of 146 "conservators," while 348 "correspondents" are distributed about the different districts, 167 in number, into which, for this purpose, the provinces of the Empire have been divided.

It is the duty of the conservators to keep in touch with local societies and individuals, and to influence public opinion everywhere in favour of the safeguarding of the memorials of the past. They have to form inventories of the treasures existing in their districts, to secure for the Imperial museums movable objects, especially of classical antiquity, that from time to time come to light, and to deal in the best manner open to them with all questions of the restoration and upkeep of architectural monuments. One of their functions is to report to the Commission upon projects for new railways, roads, and other public works, in view of any injury that these may threaten to ancient monuments. For ordinary purposes the Commission has a fixed income, but for any special demand an appeal may be made to the Minister of Religion and Education. In the case of one monument, the most important in the whole Empire—the palace of Diocletian at Palatro, in Dalmatia—there is a project for independent legislation, and in the spring of 1903 a special committee of experts spent fourteen days in examining the building and drawing up a report on its condition and requirements. The Central Commission issues as its main publication the well-known and valuable *Mittheilungen*, and, besides this, publishes in each year a report on its operations.

It is important to note that the Commission and its conservators can make no attempt to exercise compulsion on private owners of monuments. The conservators are charged to deal with these by way of persuasion and tactful management, so as to secure as far as possible that private monuments shall be as well treated as those actually the property of the State. They possess at their back, however, no legal powers. In this respect the Austrian Commissioners differ from their brethren the members of the French Commission des Monuments Historiques. For the half century from 1837 to 1887, the latter worked as the former work now, armed with official authority, but without direct legal powers of compulsion.* In the last-named year was passed the French law on historical monuments, which gave to the Minister of Public Instruction and of the Fine Arts, under whom the Commission acts, certain legal powers in favour of monument preservation. A notice of some of the chief provisions of this law will be given in the succeeding paper.

Prussia is another country where there is no Monument Act, but an organised system of conservation by means of provincial agencies, and the same applies to nearly every one of the German States that hold together under the Empire. One important department of monument administration is in Germany particularly advanced, and this is inventorisation. In nearly every case, it is one of the chief functions of the State-appointed Commission to draw up a list of the historical and artistic monuments within the limits of its survey. In Holland, only last year, there was established a "Rijkscommissie," under the presidency of the distinguished architect, Dr. P. J. H. Cuypers, charged to draw up without delay a summary inventory of all artistic and historical monuments in the country, both immovable and movable, to be followed by a full publication of the more important objects. 1850 is the limit of time up to which monuments of value may be included, and these are roughly classified as:—(1) Pre-historic and Roman; (2) town walls, gates, etc.; (3) castles; (4) civic structures of a public kind; (5) churches and charitable institutions; (6) private buildings; (7) miscellaneous objects.

It needs hardly to be said that no State inventory will be likely to take note of all the older domestic buildings and interesting details to be found in the towns and villages of the dominions. The great German State-subsidised publications, which are so numerous, deal, as a rule, with monuments of public importance. In all the German kingdoms and duchies these official inventories are in progress, and some of them are on a monumental scale. The number of separate works is nearly fifty, and in 1901 it was reported that the tale of volumes would soon reach 200. Distinct from these are the inventories that certain towns have drawn up of their ancient buildings and other artistic treasures. The Commissions and Societies mentioned previously at Paris, Vienna, and Lyons are engaged in this work. Hildesheim and other German cities have such inventories, and a list of all the old houses in Cologne is used effectively in the interests of preservation.

We are brought into contact here with an interesting phase of the general movement for the care of monuments in European lands—the independent activity in self-protection of the older towns. "Monument" is a convenient general term, embracing all the objects of the pious and patriotic activity under notice, but a distinction must be drawn between the comparatively few monuments of outstanding importance, which would find a place in any State inventory, and the numerous examples of antique civil and domestic architecture, and relics of military works, which, singly of small importance, combine to give their historical aspect to our older cities. With these, not the State, but the town or district has to deal, and the attention paid to structures and relics of this kind is a marked feature of the modern German "Denkmalpflege."

As compared with France, Germany is a decentralised country. The numerous States included within the Germanic Empire have their own bodies of domestic legislation, and Monument Acts are matters for each State to consider for itself. Furthermore, within the several States, the towns have a considerable amount of independent life of their own, fed by memories from the days when each was for practical purposes a self-governing community. There was an epoch not long ago when the State seemed disposed to take everything into its own hands, and the independence of the towns was seriously curtailed; but there came a reaction from this, and, as a consequence of the so-called "Dotationsgesetze" of about 1875, the towns have come now to manage their own affairs with considerable freedom and spirit. Hence there is in Germany a town "Denkmalpflege," as well as a State "Denkmalpflege," and in connexion with this there emerge matters of much practical interest to ourselves in Britain.

All civilised States possess Local Government Acts under which the different civic communities are empowered to make their own by-laws, of course within limits fixed by the Acts. In some of the German States these general Acts appear to allow, and even encourage, local authorities to make by-laws in the interests of amenity, while others do not

* Indirect powers of compulsion, through the process of compulsory purchase or expropriation, had always been at the command of the French Government. See *infra*.

directly authorise such a proceeding. In Prussia proper the general Local Government Act is unfavourable, and only allows municipal authorities to forbid any absolute open disfigurement of a town (Verunstaltung), more refined æsthetic requirements not being covered by it. In Hanover, on the other hand, in which province lies Hildesheim, the Prussian law is not in force, and the regulations which there obtain allow of building prescriptions that take full account of æsthetic demands. Building Acts in Würtemberg and Hesse are also said to be favourable to those who desire to restrict the freedom of constructors or destroyers in the interests of piety and good taste. In the Kingdom of Saxony, a general Building Act was a year or two ago under consideration, and the draft of this Act contained provisions perhaps in advance of any others in Acts of the kind:—"Building operations which threaten to involve an open disfigurement to a place can be forbidden. By local regulations there can be fixed a higher architectural standard for new buildings to be erected in certain streets or parts of streets."

Bavaria seems to be the classic ground for these local prescriptions, and the older cities of the kingdom, which are some of the most famous in Europe, cities such as Nürnberg and Augsburg, have taken full advantage both of the favouring general laws and of the benevolent attitude of the Government, and have framed local building laws in the interests of amenity of a somewhat drastic kind. On January 1 of the present year the Bavarian Ministers of the Interior and of Religion issued a joint minute with directions to local authorities which would have delighted the soul of the late William Morris. Civic and communal authorities are recommended to frame their local regulations on the following general lines:—

"(1) The ancient works of fortification, with their fosses, city walls, gates, towers, and all thereto appertaining, are to be preserved as carefully as possible; for every constructive alteration on them permission must be obtained.

"(2) Constructive alterations, interior or exterior, on other buildings of historical or artistic importance must depend on official permission. It should be a condition that, in rebuilding or alteration, the style and character of the original must be conformed to.

"(3) In the case of all new buildings or alterations in the vicinity of the fortifications, or of structures mentioned in the last paragraph, the character of the latter must be taken into account. Especial attention should be paid here that the new fabric should, as regards its proportions, take its proper place in the general picture, and in its details and ornament should be in harmony with the older surroundings. In order to avoid anything that would offend the eye in the general view of the town, the form and material of the roofs should be carefully considered.

"(4) When new lines of houses are in contemplation, care should be taken to safeguard the picturesque views of streets and open spaces, and the tyranny of the engineers' rule and level must of course be resisted. In general, in the case of all new buildings, especially in the older parts of cities, it should be made a matter of duty to adhere as closely as possible to the traditional building style of the place, and in this connexion again the form and the covering of the roofs become of importance.

"(5) In the case of new buildings in other (suburban) situations, especially when fresh quarters have to be laid out, it would be enough to keep general æsthetic requirements in view. Directions, however, in such matters as the proper plastering of rubble walls and the correct slope of mansard roofs would always be welcome."

It should be understood that the minute from which the above has been extracted is not issued by any militant society for the protection of ancient buildings, or by some individual lover of monuments, such as William Morris, but is the combined production of two responsible Ministers of State in a European kingdom. Moreover, cases have recently arisen in which the Bavarian Minister of the Interior and the upper courts of law have upheld the towns in the enforcement of their local regulations, when interested parties have called these in question. Thus at Nürnberg in 1899, on the occasion of a peril which threatened the so-called Nassauer Haus (opposite the western end of the Lorenz Kirche), the magistrates issued an order which forbade any alterations either in the interior or on the exterior of a historical and monumental building without leave of the local authorities. This order was appealed against to the law courts, but the decision of the magistrates was upheld, and it was stated that the Minister of the Interior approved of the magisterial proceedings.

No discussion of the kind in Germany can be complete without the pronouncement upon it by the Kaiser. On the occasion of an Imperial visit to Hildesheim in 1900 august lips framed some excellent sentences in praise of the care the citizens were taking of their older monuments:—"I congratulate the citizens on the civic spirit which dwells in this town, for from their ancient buildings, their reverend churches, their noble town hall there breathes to us, not a sophistic imitation of antiquity, but the impression of the great and beautiful."

The question of the general policy of such local regulations in the best interests of monument preservation is one on which a good deal might be said. It is worth noting that it is fully recognised in Germany at large, for it is not only Bavaria that is concerned, that proper care must be taken in the framing and enforcement of restrictive ordinances of the kind. They may easily go too much into detail, and may lay down the law on matters on which people of good taste may take different views, or they may be applied too widely, without observation of the distinction noted in the Bavarian minute between the old parts of towns, where a jarring note may too easily be struck, and new quarters, where more freedom can be allowed. Again they may be enforced too often and too rigidly, and, by producing a feeling of irritation in the minds of the citizens, do more harm than good. The municipal authorities of Hildesheim, in the province of Hanover, now under Prussian rule, have an elaborate set of local building regulations in the interest of amenity, and they consulted the Prussian Minister on their proceedings. He replied in encouraging terms, but at the same time advised them to use tact and caution in the enforcement of their restrictions.

Local building regulations of the kind contemplated are in operation in the Bavarian towns of Augsburg, Würzburg, Nürnberg, Rothenburg, Amberg, Lindau; also in Frankfurt, Hildesheim, Danzig, Lübeck, and other places. Most of them wisely limit the restrictions to the central and oldest parts of the cities. A few go rather too much into detail, and lay themselves open to the charge of pedantry.

Several of the towns in Bavaria and in other parts of Germany are like professional beauties whose face is their fortune, and they depend for a good part of their prosperity on the visitors attracted by their picturesque charm. Rothenburg on the Tauber and, to some extent, Hildesheim and Nürnberg are in this position. The preservation of this charm is accordingly a matter of enlightened self-interest, and the citizens have wit enough to recognise this fact. One wishes that the same recognition were more common among the citizens of our own older towns, such as Chester and Edinburgh. It is of more practical interest to ourselves to note that some important and busy cities, which are by no means run on antiquarian lines, are adopting the same measures for the preservation of their older historical features. Frankfurt, for example, which has been so transformed within the last twenty years that a visitor would think there is not an old house left in it, has awakened to a sense of the irrevocable loss she has been suffering, and is determined to preserve what she has left of her beautiful antique structures. The following is a local ordinance for Frankfurt-am-Main issued in the year 1900.

"Sec. 1.—For the preservation of the artistic and antique character of the following historically interesting streets and public places (here follows a list of seven such localities), all buildings which are to be erected thereon, in so far as they are visible from the street, must be so treated externally that the existing aspect of the streets be not disfigured or essentially altered. For the attainment of this end, the authorities may limit the otherwise legal height of the building, or of its stories.

"Sec. 2.—These provisions apply also to the case of alterations in older structures which already agree with these prescriptions, as well as to the case of important alterations, enlargements, etc., on buildings which do not yet agree thereto. (In the last case the authorities may in certain circumstances relax these restrictions.)

"Sec. 3.—The local authorities shall decide whether the above prescriptions have been fulfilled, and, before their decision, they must consider a report from a special civic commission, consisting of the custodian of the city antiquities, a member of the civic commission for art and antiquities, two members of the

association of architects and engineers, and one member from the magistracy, who acts as president."

In the instance of Lübeck, where new building regulations were issued in 1903, regard is had to the natural surroundings of the city as well as to its architectural character. The following are extracts:—

"All new buildings and additions to existing structures must, on every side that is visible from thoroughfares or public places, be so carried out that they do not injure either the aspect of the streets or the natural surroundings of the city, nor injuriously affect the appearance of existing buildings, especially those of historical value.

"Placards, posters, bills, and other such arrangements for advertising, or coloured surfaces that disfigure the streets or the landscape, or injuriously affect historic buildings, are prohibited."

In connexion with the treatment of those of our own older towns in Great Britain in which new interests are in conflict with the old, it is interesting to note what is being done in Mainz on the Rhine, a town which has greatly increased of recent years, and has been considerably altered by the change in the situation of the railway station. Mainz is in the Grand Dukedom of Hesse, and therefore in a region covered by a recent State Monument Act, of which an account will be given in the next paper of this series. It is also under the oversight of an official Conservator of Monuments for Rhenish-Hesse, and contributes members to the Council on Monuments of the Hessian State. A few months ago the Conservator issued a report on Mainz in 1903, in which, after discussing sundry problems connected with old buildings and new improvements, he goes on as follows:—

"Other works are now in preparation. Thus, in last January there was set on foot a systematic survey of all public monuments of architecture and of those private buildings which are to be included in the official schedule of monuments, in relation to their position in the general lines of the streets (im Strassenbild) and to the alterations in the direction and the width of streets which will be necessary within the next ten years. This procedure will be kept in operation, so that the effect on the general aspect of the streets of any unavoidable alteration in the main lines of communication may be carefully considered as part of a general scheme, and not in a hap-hazard way just when occasion arises. By these means it will be possible in the fullest measure to secure the preservation of the historical character of the city by safeguarding all existing buildings of importance and keeping new structures to a style in harmony with the old."

WESLEYAN CHAPEL, BARROW.—A new Wesleyan chapel has just been opened at Barrow. The building is in the Gothic style of architecture. The exterior is of red Ruabon brick, faced with terra-cotta ornamentations. The roof contains an ornamental turret, constructed for ventilation purposes. The interior contains seating accommodation for about 120 people. The fittings are of pitch-pine, and the windows contain cathedral glass with coloured margins. The flooring is of modern blocks. In addition to the chapel is an adjoining schoolroom, which, by a removable partition of wooden shutters, can be made as part of the chapel. Messrs. Lockwood & Sons were the architects, and Messrs. G. Wright & Sons, Kelsall, the contractors for the work.

NOTES.

The Proposed Shakspeare Memorial.

IT is proposed to erect a great architectural and sculptural monument to the memory of Shakspeare, on some site to be selected in London. Such an idea ought to be enough to inspire artists to their highest efforts, but it is amusing to see how already the typical English mind, with its usual dread of art, is aroused in opposition to the idea. The *Spectator*, a paper essentially political and literary, publishes in its last issue an article throwing cold water on the scheme, and demanding that something "useful," like a memorial library, should be erected. That is so very English. The *Spectator* doubts whether we shall get anything good, and scoffs at the London public statues as now existing, not being apparently the least aware that English sculpture has made immense progress in the last twenty years, and is now second only to French, and not far behind that. The most characteristically English idea of all is the insinuation that a monument to Shakspeare is not to be made a mere opportunity for artists to exhibit their talents. The idea that a noble artistic monument is a gain to the nation, and not a mere advertisement for artists, seems to be beyond the writer's perception.

Party Walls.

THE Court of Appeal in the case of Leadbetter *v.* Marylebone Corporation have given an important decision under the London Building Act, 1894. The plaintiff and defendants owned freehold premises adjoining. The house on the plaintiff's land was pulled down, and the building operations necessitated the rebuilding of the party wall and the construction of one of greater strength, and a notice under section 90 of the Act was served by the building owner upon the defendants. The defendants were contemplating building operations which would require the wall to be of exceptional strength, and they served a notice upon the building owner under section 89 setting out their requisitions. The questions between the parties were submitted to arbitration under section 91, and the arbitrators' two surveyors gave their decision, by which an exceptionally substantial wall was to be erected, the extra thickness to be on the defendants' land, but they further awarded that the defendants were to have the right to raise the party wall at any time as they might desire. About two years later the defendants, having commenced their building operations, proposed to raise the party wall, but the plaintiff objected on the ground that the latter part of the award was *ultra vires*, and they claimed to be entitled to a building owner's notice under section 90 of the Act. The Court supported this contention, holding that section 91, which gives the surveyors power "to determine the right to do, and the time and manner of doing, any work and generally any other matter arising out of or incidental to such difference" to be limited to the work in respect of which notice has been given and not to confer a power to determine the rights of the parties generally and at any time. The Court also construed section 95 as applying not to an alteration in the structure of a party wall but only to increased user of an existing wall. This case emphasises the point that the arbitrators must be careful not to exceed their powers. In Stone *v.* Hastie (see our Note October 31, 1903) the Court of Appeal decided that arbitrators in determining the rights of the parties under section 91 must confine themselves to the questions raised in the building owner's notice, and have no power to award a sum in respect of extra user of a party wall.

Hire and Purchase Agreements.

IN our issue of April 4, 1903, we commented upon the case of Lyon *v.* London City and Midland Bank, and the law relating to hire and purchase agreements of fixtures when the premises to which they have been affixed have been mortgaged by the hirer. The latest decision on the point is that of the House of Lords in the case of Reynolds *v.* Ashby and Son (Current Law Reports). The appellant had let certain heavy carpenters' machinery on a hire and purchase agreement to the lessee of certain land, who had built a factory thereon. The machinery was bolted down to a concrete bed by means of bolts imbedded in the concrete, which passed through holes in the machinery, which was held down by nuts. The factory owner or builder had previously mortgaged the premises, and subsequently the mortgagees took possession of the premises, and default having been made in payment of the sums due under the purchase and hiring agreement, the issue was raised as to who was entitled to the machinery, the lessor of it or the mortgagees of the premises. It was contended that since the hirer of the machinery had not paid for it, he could not mortgage it, but the House of Lords, whilst admitting that the law as laid down in the decisions was not satisfactory, held the principle as between mortgagor and mortgagee to be too well established to enable a departure now to be made, and since the machinery was affixed to the freehold, and the mortgagees had entered into possession before the lessor of the machinery had reclaimed it, decided in favour of the claim of the mortgagees. It must, however, be carefully noted that in this case there was nothing in the hire and purchase agreement showing the intention of the parties that the machinery was not to become attached to the freehold. In Lyon's case, which the House of Lords in this decision approve, there was such an intention to be gathered, since the things let were capable of being used as movables, and were only fixed to the freehold at all owing to the order of an independent party, the Town Council. The law is now settled, and it is useless to point out that it is unsatisfactory in that the mortgagee who advances money is the person really to be put on inquiry as to the security he is taking, whilst the lessor of machinery cannot know if it is being mortgaged or not. The only practical lesson to be learned is that lessors of such articles should take care clearly to express their agreements in such a way that the articles hired out may remain chattels and not become fixtures.

Motor Traffic. PUBLIC bodies who have sunk large sums of money in tramway tracks and equipment may be recommended to consider some of the points made in the lecture recently delivered by Mr. C. S. Rolls. Quite apart from the great possibilities of the motor vehicle in connexion with traffic between large cities and outlying country districts, and with the conveyance of light merchandise, it is perfectly clear that the motor omnibus has many advantages over the tramcar for urban and suburban highways. When the streets are narrow, as at Hackney, Brentford, and elsewhere in London, and in towns such as Ipswich, the tramway system is nothing less than an intolerable nuisance. Even in wider thoroughfares tramcars form a serious obstacle to traffic, and particularly so when, as often happens on the southern lines of the London County Council, a breakdown fills up any of the routes with a standing succession of cars half a mile or more in length. So far as can be judged at the present moment, the motor omnibus is the public vehicle of the future, and the sooner municipal authorities recognise the correctness of this forecast, the better it will be for the pockets of the ratepayers and for the convenience of the general public.

Street Widening in the West-End. JUDGING by the strong recommendation contained in the recent report of the Improvements Committee of the London County Council, there is reason for believing that the widening of the last remaining narrow portion of Piccadilly will be taken in hand without unnecessary delay. The thoroughfare in question is an important part of the main highway between Piccadilly-circus and Hammersmith. But it should be remembered that it is not the only part requiring attention, for in spite of improvements on the southern side, Knightsbridge still offers a considerable obstacle to through traffic. An opportunity too good to be lost now exists for securing an important area on the northern side, where the leases of several houses have fallen in. These buildings are situated between the park railings and the French Embassy, and before definite arrangements have been made for the erection of structures on a larger and more costly scale, it is very desirable that the site should be secured by the authorities. Part of the land could be added to the park, and part used for the much-needed street widening. We are glad to observe that a petition has already been presented to the Commissioner of Works and the London County Council, advocating the necessity of the improvement, and, although no evident result has followed, we trust the authorities jointly interested will not allow this golden opportunity to pass by.

A Concrete Railway Viaduct. AT the meeting of the Institution of Civil Engineers on Tuesday this week the application of concrete to bridge building was discussed in a paper, read by Mr. A. Wood-Hill and Mr. E. D. Pain, describing the construction of the Cannington Viaduct on the Axminster and Lyme Regis Light Railway. This viaduct includes ten three-centred arches each of 50-ft. span and 16-ft. rise, and has a total length of 600 ft., while the maximum height to rail level is about 92 ft. The arches spring from piers of mass concrete supported on concrete foundations of dimensions calculated for earth loads ranging from 1½ to 3 tons per square foot beneath the various piers. In the construction of the vertical faces of the arches concrete blocks were employed, with the object of simplifying and reducing the cost of the centring, the haunches and all other parts being formed of mass concrete. For the purpose of providing for expansion, four joints were made in each arch, one at each springing and two on either side of the crown. We doubt the advisability of constructing piers of mass concrete, for any undetected flaw or fault caused during the progress of the work, or developed after its completion, must involve the most serious consequences. On the other hand, if piers be built up of concrete blocks made long enough beforehand to enable their condition to be definitely ascertained, there should be every reason for confidence in the security and durability of the masonry. It was stated by the authors that the foundations were originally designed for an earth pressure of 3½ tons per square foot, this being afterwards reduced, by enlargement of the foundations, to the values mentioned above. That still further reduction would have been advisable is shown by the fact that the west abutment and the adjacent pier settled to such an extent as to crush the crown of the first arch. We wonder that the engineer responsible for the design did not think of adopting concrete-steel foundations, which would have permitted considerable lateral extension of the footings without extra expense. With some criticisms that were made on the appearance of the viaduct (by an engineer who thought his own viaduct more beautiful) we do not by any means agree. There is nothing to object to in it at all, and it forms, in fact, a picturesque feature in the landscape.

Kirkstead Abbey Church, Lincolnshire. A FUND is about to be opened for the proposed reparation of Kirkstead Church, near Tattershall, which has been closed, by reason of its untoward condition, during many past years. In the earlier half of the XIIth century Hugh Fitz-Eudo, surnamed Le Breton, a son of Eudo, a follower of the Conqueror, founded a Cistercian Abbey in Kirkstead, dedicated to St. Mary the Virgin, which at the dissolution was valued at 338*l.* 13s. 11d. per annum. The abbey church then became the parish church of the village, as a "peculiar" in the private property of the owners of the estate, and for a long period during the XVIIth and XVIIIth centuries it was used as a Presbyterian chapel. The walls are now out of the perpendicular, and the stone vaulting is in danger of falling down. The principals are carried by dwarf shafts resting upon a string-course, and divide the ceiling into four square compartments. The mutilated effigy of Robert de Tattershall, 1212, is a valuable exemplar of armour of that period; the suit of rare banded mail is covered with a short sur-coat; the head, wearing a cylindrical flat-topped helmet, rests upon a cushion.

Mr. Clausen on Painting. MR. G. CLAUSEN'S lecture on the "History of Painting" at the London Institution on Monday afternoon was to a considerable extent a repetition of points from his Royal Academy Lectures, put in a somewhat more popular form; but there was a distinct aim pervading the discourse. The History of painting, as he said, was far too large a subject to be even sketched in outline in one lecture; he only aimed at showing how early as well as infantile work was confined to a bald transcription of facts; how there was evidence that the ancients did understand modelling by shadow, an art which was lost in the dark ages, and slowly revived again by the early (not the earliest) Italian Renaissance painters. He pointed out too, and illustrated with examples, how like Japanese art, so far as it dealt with figures and landscape, was to the earliest Renaissance art and to the drawing of clever children; an example of the latter class of work, thrown upon the screen, was exceedingly characteristic in its mixture of really very correct outline with the entire absence of surface modelling; the face all one colour, the dress all one colour, laid on flat. We rather wish, however, that Mr. Clausen would not go about telling audiences that the distinction between pictorial and decorative painting is only imaginary. It is a conclusion which seems to us contrary to visible facts. All pictorial pictures should in a sense, no doubt, be decorative; but decorative pictures are not pictorial: there is a distinct difference of aim possible in works which may nevertheless each be admirable in its way. Decorative painting is that in which something of natural effect has been left out in order to assimilate it more closely with architecture. It is exactly analogous to the conventional treatment of floral forms in ornament. Nor can we accept it as a decorative merit that some of the Renaissance painters would carry on the solid architectural features of an interior into their pictures in order to make them more essentially a part of the decoration. It is interesting as an occasional characteristic of painters of the period, but it is after all a kind trick of illusion, and if a modern painter did the same we should call it bad art.

Drawings by Mr. A. H. Hallam Murray. WE suppose we are to regard Mr. Murray, who is connected with the eminent publishing firm in Albemarle-street, as an amateur artist; but if so, he is an amateur of quite unusual powers. His collection of water-colour drawings exhibited at the Fine Art Society, under the title "On the Old Road through France to Florence," shows work both in landscape and architectural subjects of the greatest beauty and delicacy, and the treatment of architecture is especially satisfactory. That showing the Romanesque arch at Aix in Provence (28) is quite an ideal bit of architectural

water-colour in regard to drawing, colour, and texture. "Narbonne—le Canal des Deux Mers" (30) is noticeable equally for its charming and real effect of sunlight and colour. Among others that we noticed particularly were "Amboise" (2); "Cahors" (7), with the two square towers white in the sunshine; "Chenonceau" (13), the château so picturesquely but not wholesomely built on arches over a river; "Valence" (32); and "San Domenico — view across the plain" (54). All, however, are good, and architects should find a great deal of interest in an exhibition of drawings dealing so largely and so ably with picturesque architectural subjects.

Women's International Art Club.

THE exhibition of the Women's International Art Club at the Grafton Gallery is, we think, a better one than last year, though its interest is really confined to the works of but a few exhibitors, the rest being a collection of mediocrities. The International element is not very prominent, nor are the foreign pictures among the ornaments of the collection, excepting Mddle. Fortunée de Lisle's "Rêveuse" (46) and "A Merovingian Princess" (139), a portrait in water-colour, and Miss or Mddlle. Kinsella's frame of very clever sketches at Bizerta; and both these ladies with foreign names date from London addresses. Of the pictures actually sent from abroad, the German are mostly such as one endeavours to forget. Mrs. Deric Hardy has a clever life-size pastel study of a woman with a nude infant, "Summertime" (44); Miss Vera Christie exhibits a good portrait of a pretty lady (75), and Miss Clare Atwood a very good work of the same kind; and Miss Robertson, an English lady painting in Paris, though two of her portraits show that studied avoidance of all charm or beauty of colour which seems to be the aim of one set of Parisian artists, surprises us agreeably by one portrait (388) which presents interest both of colour and character, and is quite different from her other works. Miss Gloag's child with the angels round its cradle (109), illustrating a well-known pious nursery rhyme, is more successful as regards the infant than the angels, but the picture has its attractions. Miss Atwood's "The Inventor" (127), as a study of an imagined type of person, is very clever and original; a character in a novel might be founded on it. Besides these, the best things are landscapes, mostly small. Among these are Miss Molony's "By the River" (77), a picture which is Corot in composition but not in texture; Miss Anna Birch's "Wayside Study" (98); Miss Evelyn Howard's three studies, two sunsets and a dawn (153 to 155), hung together, make a most attractive group, showing sentiment and poetry as well as facility with the brush; Miss Hagarty's "The Marsh Meadows" (174), "The Village by the Sea" (239), and—the best of all—"Changing Pastures" (354), a really beautiful water-colour landscape; Miss Warrack's "The Baptistery, St. Marks, Venice" (179), a well treated architectural subject; Miss Hoyland's trio of landscapes (183 to 185); Miss Kirkpatrick's "In St. Ive's Harbour" (217); Miss Mary Barton's "Above Rapallo" (238); Miss Lancaster-Lucas's "In Brittany" (294) and some others; and Miss Barbara Porter's "Rye Harbour" (311), a comparatively large work of much excellence, especially noticeable for the force and realism with which the boat rowing up to the foreground is shown. Miss Gloag, whom we have already mentioned, has also a very clever study of "Launce and his Dog" (258), superior to her baby and angels picture. At the end of the further gallery is a small collection of sculpture, in which Miss Rope's work is predominant and is all charming; and the "Seaside Studies" of Miss Emmeline Halse is a clever bas-relief panel of nude children on the beach. Marriage (among women) seems to be unfavourable to the arts, for we notice that nearly all the names in the list at the end of the catalogue have "Miss" before them, the married names being almost nowhere—we only counted ten in the whole list extending over nine pages. Marriage, we suppose, takes a lady from the studio to the nursery.

Messrs. Dickinson's Gallery.

MISS PEACHEY'S oil sketches in Brittany, at Messrs. Dickinson's Gallery in Bond-street, show much feeling for landscape effect; and one or two sketches of winter snows in the Engadine are interesting as showing an aspect of that region with which most of us are not familiar. The character of country is well given, too, in such sketches as "Ile de Batz" and "La Forêt, from Concarneau"; and in the vigorous sketch of "Threshing with Flails" there is a reminder of the energy of Millet in subjects of this class. A series of studies of animals by Miss Gertrude Whelpton form part of the same exhibition. These also are of no little merit; "The Yeoman's Horse" is a capital study, showing very good drawing, and the studies of cats, especially the one "Left Behind," are worth attention.

The Dutch Gallery.

AT Mr. Wisselingh's Dutch Gallery, which has now migrated, apparently, from 14, Brook-street to 14, Grafton-street there is an un-catalogued collection containing some very good pictures; notably one of the finest examples of J. Maris that we have seen; one or two good examples of Vollon, and a very fine coast scene by Mesdag.

Pictures of Norway.

THE title of "Norway" appended to the collection of water-colour drawings by Mr. Jungmann which are on view at Messrs. Dowdeswell's, suggests something very different from what the visitor will find. These are not drawings of the grand scenery of Norway, but what may be called details of the country and its inhabitants. As far as the figures are concerned, Mr. Jungmann's decorative style comes in very well; much of the interest of the figures lies in the picturesque costume, and this is treated by the artist in a painstaking and effective manner which produces pictures a little stiff, it is true, but admirably decorative. But it is a different thing with the scenes (we say purposely "scenes" rather than "scenery"). The villages with their naïve timber architecture are painted in a way that shows the facts carefully, but fails to make a picture. The structure and appearance of the buildings are most carefully given—you might almost write a specification of them. But they do not blend with the scene the least; it is not a picture but a diagram.

EXHIBITION OF ACADEMY STUDENTS' WORK.

THE Travelling Studentship in Architecture has only attracted three competitors. The subject was "An Art School for a London Borough," and it has been won by Mr. Leslie Wilkinson, whose design is certainly the best of the three, but not one to excite much enthusiasm. In the plan the three departments of Antique and Life, Painting, and Architecture, are on three sides of the building and all lighted at the side, with the consequence that they cannot all have an equally good light; south is avoided, but the architecture school has west light, which is a bad one in summer. Otherwise the plan is well arranged, and the elevation fairly pleasing but rather wanting in refinement, and the shape given to the gables of the end pavilions—a wall cut out into an overhanging curve on each side, is a detail that is quite out of scale with its position and surroundings. In an Academy drawing somewhat more care should be required in putting in the sculpture on the building; the sketching of figures with balloon-like curves of drapery is a little too easy a way of doing it. In the design numbered 166 the author has done worse with the lighting, for he has given the architectural class-room a side-light to the south—an aspect, in summer, almost intolerable for working.

Only one design has been submitted for the prize for an elevation treated in colour (the east end of a church); the silver medal has been awarded to the one competitor, Mr. W. Harvey, whose colour harmony in the composition is very good, though it seems rather ragged in detail.

Five students have competed for the Architectural drawing prize, the subject being the Rood screen of the Church of St. John, Bois-le-duc. A first silver medal is awarded to Mr. Swarbrick, and a second to Mr. W. Harvey. There is not really much to choose in merit between the two, only that the former being tinted, and the latter only in line, the former is the more effective. The careful drawing of the figures and other details in these two sets is proved by their great similarity. As an example of the aberrations which will occur in what profess to be careful drawings from the actual work, it was rather amusing to compare the left hand sculptured figure on the upper part of the screen as shown in the two prize drawings, with the same figure as shown in the sets numbered 171 and 172; it was impossible to suppose that they were meant for the same thing; both attitude and proportion being completely different in each, both from each other and from the prize drawings.

For the prize for perspective drawing for architectural students only one competitor appeared, Mr. Leslie Wilkinson, and to him the prize has been awarded for a good drawing of the interior of St. James's Church, Piccadilly, accompanied by a drawing showing the construction lines of the perspective.

In the upper school of architecture the 25*l.* prize for a set of drawings of an architectural design is awarded to Mr. Percy I. Elton for a set of drawings of a Chapter house. This is a pure Gothic study, on an octagonal plan. The large-scale half section is a very good drawing. Among the others that numbered 177 was a good and rather original study. In the lower school the 15*l.* prize is awarded to Mr. Bayley for a set of drawings of "a Livery Court Hall for a small city." This is the best thing among the architectural drawings; a good plan with a suitable and satisfactory architectural treatment. The 10*l.* prize was awarded to Mr. Leslie Wilkinson for designs for a college hall, late Gothic in character.

The subject given for a sketch for a figure picture was "Cain Killing Abel." The subject, only demanding two figures, is simpler and easier than many that have been set, but the results are not very promising. Mr. E. G. Solomon obtained the prize for what is perhaps the best design, though we were rather struck with one representing Cain standing in remorse

and terror over the dead body of Abel, with a stormy sky behind. It may, however, have been considered that this did not strictly carry out the subject.

Sculpture, as usual, shapes best among the exhibits. The subject for the model of a design was "Samson and Delilah," and the prize-winner, Mr. Merrifield, has produced a model which is full of promise, as it is both expressive and truly sculptural in line and building up. Delilah is seated with Samson kneeling and bowed over her knees in sleep, while she, with a cruel expression of face, beckons to his enemies. The group is concentrated and pyramidal in composition, and altogether of great merit; it would be well worth execution on a life-size scale. The second prize model, by Mr. Sands, is also good in line, but much more commonplace in conception. The sets of models from the life show very good work. For the Figure and Ornament prize—subject, "A frieze for a temple of Neptune," the prize was won by Mr. G. Alexander for a bas-relief composition in which nude children, fish, and a sea-eagle, are combined in a very decorative manner. It was unquestionably the best of the three or four designs sent in, but there was merit in No. 154, a conventional frieze of sea-horses and riders, of a very architectural character.

The Creswick prize—subject, "Scotch firs on a Common," attracted far more competitors than anything else except the sculpture model; though, as usual, few or perhaps none of the works could really be accepted as satisfactory specimens of landscape-painting. Miss Walford's, which obtained the prize, is undoubtedly the best in execution, though less effective in composition than some others. The tall fir-tree stems shut in the view—they look rather too flat and seem to want modelling a little; the sky, the best portion of the picture, shows through their foliage; the foreground is rather weak in effect and harsh in its green. Among the others Nos. 7 and 16 were above the average. The exhibition of these pictures serves to indicate (if the indication were required) how very difficult an art landscape-painting in oil really is, when we see that so many students who are not mere beginners, who have learned to handle the brush with ability, cannot among them produce what can be called a really complete work of art. To represent a scene is one thing; to treat it so that it becomes a work of art in landscape is another and a rare accomplishment.

The subject for the Cartoon of a Draped figure was a difficult one—"A Greek girl dancing," involving the expression of action as well as mere pose and design. It is probably for this reason that the set are not so good as we have seen in some former years. The prize drawing, by Miss Lilian Price-Edwards, is very pretty, but not very Greek; there is too modern a feeling and expression about it; something that may be described as *espièglerie*, a quality distinctly not Greek.

For the prize for perspective open to all students there were but two competitors; if students only realised how often even eminent painters fail in the perspective of buildings, they would see the advisability of giving more attention to this subject. The prize is won by a lady, Miss Dovaston, with satisfactory drawings.

The subject of the Decorative painting for the wall of a public room was "Peace," and the prize has been awarded to Mr. G. H. Short for a design which is certainly the best, and is a very able and original one, but which may be open to the objection that it is scarcely a real rendering of the subject. It represents the globe of the earth revolved in space, beneath the stars, by two flying nude figures, who seem to turn it round; an inscription round the margin, in rather cryptic characters, among which were to be made out the words "Seed-time and Harvest, Summer and Winter shall not fail," indicates that the idea in the author's mind was that of the promise after the Flood; but it is a somewhat too fanciful reading of the subject given. However, it is good both in colour and design, and distinctly decorative in character, and the life-size cartoon of one of the figures is a very clever drawing. Among the others perhaps the most successful was No. 31, in which two old people, picturesquely designed, are seated on a stone bench on the right of the composition, looking at the setting sun; there is poetry in this, as well as good composition, though a little too much of landscape effect for a decorative picture. No. 30 was good in colour, but the figures rather commonplace; No. 24 also good in colour. In No. 23 the seated draped figure on the top of the arch is well posed and comes out well in the life-size cartoon; the composition rather wanted definite line.

MAGAZINES AND REVIEWS.

THE *Art Journal* opens with an article by Mr. F. Maclean on a rather new subject, "Positions and accessories in portraiture." The illustrations selected remind one how great a change in taste in these matters has taken place during the last hundred or hundred-and-fifty years. It would hardly be possible to paint a portrait of a child nowadays, as Reynolds painted Master Wynn, "in the character of St. John," attended by a lamb, and holding a cup to catch water from a spring streaming from a rock. Nor do we see ladies now painted as muses and what-not-else of allegorical characters. There is a feeling that this kind of treatment is in a false and pretentious taste. The author notes also that in portraits of naval and military heroes it is no longer usual to represent them wielding a sword or pointing a telescope in the thick of battle, with a cloud of smoke as a background; though such portraits are generally painted in the uniform of the profession. Mr. Maclean thinks that we "have lost some of our inventiveness" in portraiture; but the inventiveness of the old school was hardly of the right kind; there was something of the mock-heroic about it. There is something to be said for introducing into the portrait of a man celebrated for any special professional acquirement some indication of his work; a good example is Millais' remarkable portrait of Sir James Paget, lecturing on anatomy before a blackboard with chalk sketches on it. We do not know whether the writer means to continue the subject; it is by no means exhausted in this article. Sir W. Richmond's remarkable Gladstone monument forms the subject of two illustrations, photographed from the plaster model, now complete. This will be a fine and very original example of monumental design when completed. Calvert, Blake's friend, and a somewhat kindred spirit in art, is the subject of a short article accompanied by two illustrations, and one of the separate plates is a successful and powerful reproduction in colour of the "Autumn" of Mrs. Stanhope Forbes, whose work is the subject of another article.

In the *Burlington Magazine* is a short editorial note on "The picture exhibitions of the future," in which we are exhorted to scorn the large exhibitions, which are only to catch the shillings of the populace, and find more intellectual interest in small exhibitions such as that recently seen at the Leicester Galleries of the work of Mr. Conder and Mr. Rothenstein. These kind of exhibitions of eccentricities, with bad drawing of figures, or no drawing, are now the higher art! It is an amusing though somewhat irritating phase of contemporary art-criticism. Select exhibitions of the work of one man are often of the highest interest, when he is really an artist who is at the centre of things and not making eccentric side-shows out of the art of painting. That there is much in the larger exhibitions only calculated for the popular mind is true enough; but we have the chance of a great picture or two in them, worth more in itself than scores of would-be intellectual eccentricities. An article on the late Mr. Forbes's Millet drawings is accompanied by a number of very interesting illustrations, all of course of Millet's peasant-painting era, which has now obscured to most people all recollection of his earlier and equally powerful paintings of abstract and nude subjects. Millet opened a new chapter in modern painting in his treatment of peasant life, but it will some day be recognised that the artistic element in these has been somewhat over-rated—that many of them are not so much pictures as moral lessons. Mr. Clouston's essay on "Minor English Furniture Makers of the XVIIIth Century" deals in this issue with the work of Matthias Lock, whose style, as Mr. Clouston says, is essentially that of Adam and his drawings very like those of the eminent architect. The design for the table and mirror reproduced from one of his drawings we cannot admire except in regard to the treatment of the mirror frame and its method of connection with the accessory ornament; but this latter, and the design of the table legs, are very bad, and better forgotten than preserved in illustration. Lock's sketch of a one-armed oval chair, with no tawdry ornament, is good: it was the ornament that led these people astray. The number includes two fine illustrations of a beautiful bronze Hermes, one of the Paramythia set, lately presented to the British Museum by Mrs. Hawkins, with a historical and critical note on it by Mr. Cecil Smith.

The illustrations in the *Berliner Architekturwelt* are devoted mainly to a single house, No. 38 Bendlerstrasse, Berlin, by MM. Hart & Lesser, which are very interesting. Almost the whole of the interiors of the house are given; and though there are touches here and there of that taste for twists and curves which is so prevalent in modern German work, on the whole they give a very favourable idea of a first-class Berlin street house. The exterior is treated soberly but not ineffectively; the walls are broken into vertical pilaster-like strips between which the windows are grouped. The plan is of some interest, especially in the grouping and arrangement of the bedroom floor, with its suite for the owners and suite for guests, each shut off within itself.

The *Architektonische Rundschau* contains an article on the interesting subject of "Friedhofkunst"—literally "churchyard art"; the works illustrated, however, are what may be called "mausolea," family vaults treated architecturally; a kind of architecture to which the Germans, as everyone knows, pay much attention, and which their architects often treat in an original and impressive manner. Most of the illustrations given are (naturally) German examples, but there are four of American origin. That there are no English examples need not surprise us; English architects have not done much in this way; but we should certainly have thought that French examples, which are numerous and often good, might have found a place in the article. Among the plates is a photographic reproduction of a warehouse in the Rosenthalstrasse, Berlin, by Herr Alfred Messel, perfectly awful in its detail, though undeniably clever in what may be called its putting together. The only other illustration worth special mention is a successful colour-print of a good water-colour sketch by Herr Weigle (Stuttgart) of part of the castle of Reifenstein, near Sterzing.

Among the serial articles in this month's number of *Technics*, we need only notice those of special interest to our readers. Mr. Parshall and Mr. Hobart, continuing the subject of "The Mechanics of Heavy Electric Traction," refer briefly to the varying conditions associated with the use of several types of motor, and with the varying characteristics of motors of individual classes. They next give two series of speed-time and speed-distance curves which, considered in conjunction with curves reproduced in previous articles, show that the influence of accelerating conditions diminishes steadily with the increase of distance between stops, and with the reduction of the average speed for a given distance between stops. The charts in question should enable the student to draw many useful conclusions. Two other sets of curves near the end of the article show clearly the great increase in schedule speed rendered practicable by electric traction in short distance runs. Professor J. A. Fleming, as a part of the general subject of "Electric Waves," discusses the nature of the electrical phenomena which, owing to their similarity to those evidenced in acoustic resonance, are said to be due to *electric resonance*. The principles of resonance are admirably elucidated by several illustrations, and an interesting part of the article is that in which the writer explains the connexion of resonance with the Hertzian wave or wireless system of telegraphy. Proceeding a step further in his explanation of "The Electro-Magnetic Theory," Mr. Edser explains how quantitative information may be obtained as to the properties of electric tubes of force, the results applying with small modification to the magnetic tubes. In the ensuing investigation the writer deduces by most simple means several formulæ of great importance in electrical engineering. A most useful contribution to the series on the "Theory of Structural Design," by Mr. Etchells, relates chiefly to brackets on steel stanchions, which cause bending stresses so far in excess of the direct compression that the ordinary column formula become quite valueless. The procedure recommended by the writer of the article is to compute the extreme fibre stress (f_b) due to bending by the non-axial load, and adding this to the direct compressive stress

(f_c) due to axial load, to design the stanchion by an ordinary column formula to carry an equivalent central load of ($f_b + f_c$) A tons, where A equals area of the stanchion in square inches. A further simplification of radius of gyration formulæ, and some remarks on the effect of heat on the strength of steelwork are useful features to this instalment. In view of the generally admitted opinion that chemistry should form an important part of the scientific training both of the engineer and of the architect, the article by Professor Travers on "The Determination of Relative Atomic Masses" should be of interest to many of our readers. An article on "The Elements of Chemical Engineering," by Dr. Grossman, is the first of a new series intended to make clear the nature of the apparatus necessary for the economical manufacture of products which the student is taught to make on a small and generally expensive scale in the laboratory. Mr. Percy Longmuir contributes the first of what promises to be a most interesting serial article upon "The Metallography of Steel." The present contribution is illustrated by several views showing the micro-structure of iron and steel as cast and after heat and mechanical treatment, the differences exhibited being very strikingly presented. Finally, we may mention a description by M. Jacques Boyer, of "The International Bureau of Metric Standards," an institution under the management of an International Committee, armed with authority by the General Conference on Weights and Measures. Altogether, it will be seen that this issue of *Technics* is fully up to the standard set in former months.

The *World's Work* publishes an article on "Bungalows for people of moderate means," some of the illustrations to which show good points in planning. The editor should require those who furnish or lend plans to see that a north point indicator is put on them all; some have it, some have not.

Knowledge contains an article on the newly-discovered ninth satellite of Saturn, together with some suggested explanation of the remarkable fact, not certified till after about a year's observation, that its motion in its orbit is retrograde, or contrary to that of the planet's revolution.

In *Macmillan* is a short but thoughtful article by Mr. E. M. Congreve on "Nature in Greek Art." His question is whether the Greek really cared for and appreciated natural scenery; his conclusion is that he did, but that in art (and almost in imagination) "he was ever ready to see it in a personal form, to give a history to every hill or stream, bird or star." This is the same idea that was long ago expressed in a fine passage in the fourth book of Wordsworth's "Excursion"—the passage (too long to quote) commencing—

> "Once more to distant ages of the world
> Let us revert."

The *Pall Mall Magazine* contains a symposium on the subject "Is London growing more beautiful?" in which the speakers are Mr. Thackeray Ritchie, Mr. John Davidson, Mr. Boughton, Mr. R. Blomfield, Mr. Marriott Watson, and the Rev. R. J. Campbell. The title of symposium given to this kind of joint article by various authors is rather a misnomer, as a symposium should be an interchange of ideas, not a mere succession of unrelated opinions. We do not think any of the remarks come to very much practically except one of Mr. Blomfield's, who doubts whether London is improving, but thinks the failure is due not so much to want of buildings that are individually good as to the inadequacy of "the municipal idea of architecture."

> "In London, for instance, in the last twenty years, there has been the failure of Shaftesbury Avenue, with its inadequate roadway and unconsciousness of vista. Then there was the Strand improvement scheme, in which the final setting out was determined in the teeth of competent advice so far as architecture was concerned, and a competition was held which ended in space. There is indeed the monumental Gaiety block; but who is to maintain that heroic scale? and indeed there are signs in the neighbourhood that it will be ignored at the first opportunity. Lastly—and here we come back to the more particular point—there are the public parks and spaces laid out in the last twenty years. Complacent county councillors may pat each other on the back, and protest to their constituents: 'See, this we have done for you,' but to the mere artist few things are more depressing, even more irritating, than the deplorable vulgarities of recent public parks, where the eye is eternally met by the same trivial paths, meaningless planting, and trade-catalogue ornament. As to the moral side of their work, no doubt, the London County Council might make out an excellent case; but in their æsthetic aspect their failure is absolute."

With every word of which we agree.

In *Scribner*, under "The Field of Art," Mr. Russel Sturgis has something to say about the new bronze doors of the Boston Library, of which we think we have already mentioned a description and illustrations in another American magazine. Each of the six doors (hung in pairs) contains a low-relief model of a symbolical draped figure large enough to occupy most of the surface of the door, and in a relief which, in comparison with the width of the door, is proportionally no greater than the relief head on an ordinary coin. That is no doubt the right way to treat such work. The illustrations are very small, but convey an impression that the design of the figures is very graceful and pleasing. The manner in which the best art that could be obtained has been expended on the Boston library should be a lesson to public institutions and corporations in England.

The *Century* contains an article by Mr. G. H. Grosvenor on Dr. G. T. Moore's method of purifying water from typhoid germs by dissolving a small proportion of copper sulphate crystals in it. This is a method applied not to the family cistern so much as to reservoirs, etc., on a large scale, the method being to tow coarse sacks full of the crystals, slung from boats, across and across through the water. The success of the experiment on several fouled reservoirs is described in the article, the proportion of the copper sufficient to destroy the algæ being too small to affect the drinkers of the water. The article is at all events of considerable interest, and goes fully into the subject.

"London Films" is the title of an article in *Harper* by Mr. W. D. Howells, the well-known American novelist, which is really a record of his impressions of London city and London Society. It is, as may be supposed, cleverly written, and in regard both to City and Society recognises very candidly that London has desirable elements which New York has not—for it is between London and New York that the comparison is especially made. One reason Mr. Howells prefers the effect of London to New York is in the unbroken line which our streets present, while in New York the horizontal line is checked and interrupted constantly by the vertical lines of the high tower buildings. We learn, therefore, that all Americans, at any rate of the most cultured class, do not think the high building such a blessing.

The *Revue Générale* has an article on the subject of the legend of St. Francis as treated in early Italian art, by M. Arnold Goffin, whose articles on artistic subjects in this excellent review we have often alluded to. He remarks that it is only among the "Primitifs" that the Franciscan legend is treated with the simplicity and spirituality which its illustration in art demands; the painters of a later age get too far removed from the spirit of the legend.

In the *Gentleman's Magazine*, under the title "Mother Moscow" (a familiar Russian appellation of the ancient city) Miss Emily Richings writes a picturesque description of the city, its principal buildings and the general impression it gives to the eye of a visitor.

THE ACROPOLIS OF ATHENS.

On Saturday last at the British Museum Professor E. A. Gardner, M.A., lectured before the members of the University Extension Guild on "The Acropolis of Athens." The lecturer's remarks were illustrated by drawings. Commencing with an outline drawing of the hill, he placed in position representations of the buildings as he described them. In the course of his address Professor Gardner said that there were only two places in the world where one could properly study the Acropolis—one, of course, was on the site itself, and the other was the Elgin Room in the British Museum. He wished that day to bring before them the various stages by which the Acropolis of Athens became that wonderful harmony of buildings and walls which was so familiar to them. The Acropolis of Athens was not always so distinctive in its shape, and so different from all other sacred citadels as it was now. In early days it was simply a rock of somewhat irregular shape standing at a considerable height above the surrounding country, and which must always have been conspicuous in the Athenian landscape. It was situated at a convenient distance from the sea, which was a great consideration in early days, when the inhabitants were likely to be attacked by pirates. It was fortified with a massive wall, of which some traces might still be seen. The only accessible side was the western, but on the northern side there was a staircase which was a kind of postern similar to those in the citadels of Tiryns and Mycenæ. There was one other means of access, which was the tunnel and cave which was used by the Persians to capture the Acropolis at a later date. They had not much trace of the early gate of the Acropolis, but they had remains of a great flanking tower. It was situated on the right, so that any one approaching the defenders could be assailed. There were some traces of a zig-zag path on the western side. They could also trace the walls and towers at intervals of this ancient citadel. They had little in the way of architectural form up to this, for the walls followed the contour of the rock. The first change to more architectural form was the temple, which Homer told them expressly was the favourite abode of Athena. They were told how Athena set Erechtheus in her rich temple. The form was much like that of later temples. They did not know by whom the temple was built, but it was of very early date, and probably went back some time before the Tyranny of Athens, in the VIth century. Pisistratus, somewhere about 550 B.C., seemed to have thought the temple was too plain for the goddess, and placed columns around it. It was a colonnade of the Doric order, but by no means the earliest type of Doric. In this state, probably, things remained during the time of the Tyranny, although no doubt, of course, smaller buildings were erected which had disappeared. Some were destroyed by the Persians, but although they had many fragments they could not with certainty restore the plans and say exactly where they stood in the Acropolis. At this time the Acropolis was still a fortress, and things remained so up to the revival of the Athenian Democracy, in 510 B.C., when the principal gates were broken down so that there should be no temptation for any powerful citizen to seize the fortress. It was probable that about this time the idea arose of building a temple for the great Athenian goddess, but to enable this to be done on the highest point it was necessary to make a structure to carry the temple. The great temple was raised upon a substructure of extremely massive character, built entirely of stone quarried from the neighbourhood. Many books said this temple was not projected until after the Persian wars in 480 B.C., but he thought it was extremely probable that the original project was twenty or thirty years earlier. It was also probable that the first intention was not to make such a magnificent temple as the Parthenon. They could recover the walls of the substructure deep beneath the earth, and this building no doubt went on during the earlier days of the Athenian Democracy. After the battle of Marathon, 490 B.C., it was apparently decided to make the temple more magnificent than was at first intended, and instead of building it of limestone to build it of Pentelic marble. At the same time probably the entrance of the Acropolis was taken in hand. A kind of marble hall was placed at the entrance, and a facing of marble was given to the wall there, including the bastion which protected the gates in earlier times. The temple he had referred to was being built when the great event came; the victory of Marathon in 490 B.C. had only deferred the victory of the Persians for ten years, and in 480 B.C. the Persians invaded Greece. The Athenians had been warned by the God of Delphi to seek shelter behind wooden walls, and most of them took to their ships. A few waited at the Acropolis, and paid heed to the oracle by building a wooden barricade. For a long time the Persians could not get in, but at last through treachery they got into the citadel by means of the cleft and tunnel he had referred to, and, taking the defenders in the rear, slew them. The Persians burned down all they could, and threw down the buildings. They set fire to the scaffolding round the temple, and damaged severely the marble drums, which were in position. When the Athenians returned after defeating the Persians at sea they found their temples thrown down or burned. The sacred olive tree, which stood outside the House of Erechtheus, was burned too, but they were told by Herodotus that a long shoot the next day was seen to grow out of it. Themistocles fortified the north side, and into the walls built a great deal of the materials used in the temples pulled down by the Persians. The place was left pretty much as it was till 468 B.C., when Cimon, who had accumulated a great deal of spoil, proceeded to build the magnificent wall of the Acropolis on the south. In

this he departed from the practice of his predecessors, and made a magnificent sweeping wall, which gave an entirely new character to the hill, and made it as we see it at the present time. It was the great wall of Cimon which gave the Acropolis its regular aspect. Another thing he did was to erect the colossal statue of bronze which stood in the open air facing the old gate house, and which was the most conspicuous thing to be seen as one approached from the sea. Then they came to the age of Pericles, who devoted the treasures which had been gathered together for the protection of the Greeks against the Persians to the decoration of the Acropolis in such a manner as to embody in it for all time all that was most perfect in Greek architecture. They could trace from different records the stages of the work, and the earliest building was the little temple of Niké Apteros, or the Wingless Victory, which stood on the bastion on the west wall. His next great project was to build that temple which they knew now as the Parthenon, and this was built on the substructure which he had dealt with. It was, however, somewhat different from the plan originally decided on in the building which was commenced before the Persian invasion, and was made broader and somewhat shorter. He need say nothing of the Parthenon, but it was the temple from which the bulk of the sculpture in the Elgin room came, and was the second of the Greek works carried out by Pericles. Another great undertaking was to replace the earlier and somewhat antiquated marble hall at the entrance by the Propylæa, which still remained to a large extent *in situ* at Athens. The plan of this building was originally a very magnificent one, but to have carried it out would have meant interfering with revered objects of worship, and so the southern wing was finished off in a curious way, and certainly not in the way the architect would have liked. There was great opposition on the part of the more religious and conservative Athenians to the interference with sacred objects, and the plan had to be given up, but there was no doubt that the architect would never have consented to have had his plans mutilated, but that he felt he would in time overcome the opposition, and be able to carry out his original plans. Another of the great buildings of the Acropolis which might possibly have been begun under Pericles, but which some authorities said was not begun until later, was the Erechtheion, and this was doubtless intended to take the place of the early temple of Athena and Erectheus. In some ways, of course, the Parthenon took the place of this ancient temple, but the Athenians never allowed it to take chief place in the worship of the goddess. The sacred image was kept in the older temporarily restored building, as well as many other sacred objects, which may have been in other temples prior to the Persian invasion. The plan of the Erechtheion was unique, and doubtless was planned in the way it was to include various sacred objects, such as the imprint of Poseidon's trident. It was very probable that the first plan of this temple was modified, and in all possibility after it was built the ancient temple of Athena was removed. The Erechtheion was built in the Ionic style, and the Porch of the Caryatides was still in a state of preservation. A building which they could not date, but which was probably of the late Vth or early IVth century, was placed on the south wall—the Chalcotheke, a great storehouse for bronzes. It was at a lower level than the Parthenon, and did not interfere perceptibly with the view of the Temple. The Acropolis remained in this state during the IVth century, except that, of course, numerous statues were erected. It was not, however, until Roman times that any other monuments of any importance were erected. In the time of Augustus there was set up in front of the entrance a pedestal, which carried the statue of Agrippa, and which formed the most conspicuous object then to anyone approaching the Acropolis. The last of the buildings was the little temple set up in front of the Parthenon, dedicated to Rome and Augustus. It was built by the architect who probably restored the Erechtheion, and it marked work of the Vth century. While it was good work, yet it could not stand any comparison with the earlier work of the Greek architects.

Professor Gardner, at the conclusion of his lecture, accompanied the members of the Guild in a tour of inspection of the Elgin statues.

PROPOSED EXCAVATIONS AT HERCULANEUM.

AT the Royal Academy of Arts on Tuesday, Dr. Charles Waldstein (Slade Professor of Fine Art in the University of Cambridge) gave a lecture on "Herculaneum and the Proposed International Excavations." Sir E. J. Poynter presided.

The Chairman said he wished to state briefly what had led to the meeting. It might be a matter of surprise that the excavation of the city of Herculaneum, which led to such wonderful discoveries of antiquity and art more than a century ago, should for so many years have been suspended. The general explanation given by those who had no intimate knowledge of the facts was that Herculaneum was overwhelmed with a stream of lava which was a material it was impossible to deal with. They might be sure that there was no want of enterprise on the part of those engaged in the work of exploring the buried cities of the Bay of Naples, but there were peculiar difficulties in pursuing the work of investigation. Those difficulties however were not insurmountable, and resolved themselves rather into a matter of expense. The excavation of Pompeii had gone on steadily with few interruptions since they were first started in 1755. The problem there was comparatively simple. The town was covered under an accumulation of fine ash from the volcano, but the roofs of the buildings were not completely covered, and the soil to this day was loose and friable and easy to remove. Herculaneum, on the other hand, was overwhelmed by a sea of mud, and the labour and cost of clearing it away was so great that the opening of the remains to the light of day had always been considered to be out of the question, and tunnelling appeared to be the only method of reaching the buildings; the most serious difficulty however was the existence of Portici and Resina over the ancient city, and the attempt to excavate in 1860 was abandoned, and there had been no further serious efforts made to discover the treasures which were buried underneath. As they knew, by far the largest portion of the Greek art in the Naples Museum was found in Herculaneum, and much remained to be discovered. It would be a sort of miracle if the first house that was excavated should be found to be the only one of any value. Dr. Waldstein had conceived the idea of making further excavations of this ancient city an international enterprise. He had met with much success, but his idea was that the scheme should take definite shape in England. Under those circumstances it appeared to him (the speaker) that these discoveries being an artistic matter, the Royal Academy of Arts was the proper place from which the scheme should take its inception. The Council of the Academy took up the suggestion warmly, and the invitations for that meeting were issued. He had the assurance that the Italian Government was deeply interested in the matter, and, of course, without the consent and approval of Italy it would be an impertinence for foreign nations to step in.

Dr. Waldstein said he must first thank the Council and Fellows of the Royal Academy for allowing him to promulgate his scheme. It was most appropriate that of all archæological excavations one concerning the ancient Herculaneum should, as a scheme, take its inception in that hall. The proposed excavations would, no doubt, have an immediate bearing on problems of history and on archæological questions, but there was equally no doubt that they would be directly concerned with things of beauty and works of art. As they knew, Vesuvius had remained quiescent for many centuries, and the inhabitants of the Campanian district were in no way led to expect an eruption before it came. It was true there was a great earthquake in 63 A.D., which was only sixteen years before the final eruption, and this destroyed a part of Pompeii, and no doubt a portion of Herculaneum; but in the intervening sixteen years the part destroyed was rebuilt. It was on August 24, 79 A.D., that at half-past one in the afternoon a great volume of smoke issued from Vesuvius, and in Sir R. Jebb's translation of the letters of Pliny the Younger to Tacitus they had the whole scene described in vivid language. What was important to them and always to be borne in mind was that the effect of the eruption was very different upon Pompeii and Herculaneum. The wind, as was described in the letters of Pliny, came from the north-west, and this blew the ashes to the south-east and south. Pompeii and Stabiæ were covered with hot ashes and pumice-stone, while a great stream of fluid mud poured down from the mountain and covered Herculaneum and the whole district around. It was so plastic that it entered every crevice, and this had preserved instead of destroying. It had been shown by the investigations of geologists that there was no trace of lava, and it was curious how widespread was this misapprehension. Nearly everyone said, "I know that excavations are impossible because you have hard, impenetrable lava." He had tried to find who was the first authority for such a statement, but had failed. He, in company with Mr. Shoobridge and experts, had examined the site, and they found no trace of lava. Professor Hughes, of Cambridge, Guy Lussac, and other eminent geologists had all distinctly stated that it was hardened mud and ashes with bits of stone mixed up, and this had hardened where it was exposed to the air, but it was perfectly friable and workable. Moreover, it was proved by the excavations which had been made; and it seemed to him strange that, in the light of the wonderful works found, and the marvellous state of preservation in which they were found, which filled the Museum of Naples, excavation had not been made, for the finds taught an interesting lesson with regard to the state of preservation of articles found in the two cities. In Pompeii the bronzes were a good deal destroyed, the wood was burned, the marble calcined, and the glass molten; but in Herculaneum they did not find this. There they found the bronze with beautiful patterns remaining, and manuscripts had been found which could be read. Pompeii was situated on an eminence and was never completely covered, and there was evidence that the inhabitants returned and searched for their lost treasure. On the other hand, Herculaneum was at once and completely covered with a mass of liquid mud to the height of 80 ft. in parts. It was completely obliterated; the catastrophe was sudden and overwhelming, and while he did not wish to be wanting in sympathy and compassion for the poor people who perished, yet he must confess it was so long ago that he had a feeling of joy, so far as the remains they hoped to find were concerned, that it was a wonderful preservation and not a destruction. At the height of the life of this glorious town life was arrested and fixed for centuries, and it remained for them to restore that life again to at least an artistic vitality. There was a great difference between Pompeii and Herculaneum. It was true that the whole district was settled by Pelasgians and Oscans, but Pompeii was of more Oscan origin, while Herculaneum was a Greek settlement. No doubt Herculaneum was affected by the Samnite war, but although the Samnites overran the country Greek culture prevailed and survived. Then the Samnites who had settled in the plains were overcome by the more hardy Samnites from the mountains, and it was not until the social war between 90 and 80 B.C., that Pompeii and Herculaneum became Roman towns. Herculaneum, however, always remained Greek, and they found that the Greek artisans who worked in Pompeii lived in Herculaneum. Pompeii was, after all, a town of pure mercantile interest, whereas Herculaneum was a centre of the higher intellectual life, where people congregated and had their villas. One fact alone would bear that out. At Pompeii they could not say that a single manuscript had been found, whereas in the one villa excavated at Herculaneum 750 papyri were found. The only bits of writing they had in Pompeii were a few interesting wax tablets, but these merely contained receipts for auctions. Then again at Herculaneum the works of art were of the finest character, representing the highest phase of Greek taste, but few came from Pompeii. Unfortunately the literature which had been found in the Villa Piso was that of an abnormal being like himself—the literature of a specialist, who was devoted to Epicurus. The whole of the 750 manuscripts concerned Epicurean philosophies. But the others who lived in Herculaneum could not have been specialists, and it made them giddy to think of what they might discover—the lost books of Livy, the whole of Aristotle, and lost Greek tragedies. One villa at Herculaneum had yielded as many works of Greek art as the whole of Athens, if the Parthenon was excluded. Although he did not claim for Herculaneum that it was one

of the greatest centres of civilisation, still there ancient Greek art was kept alive, and it was the only centre where they had any reason to go for a more or less complete restoration of ancient life at its height. Dr. Waldstein at this point exhibited a large number of lantern slides, showing the bronzes, statues, papyri, ornaments and domestic articles found at the Villa. Piso, and said he brought these to show the state of preservation of the objects, and what culture and civilisation the inhabitants of Herculaneum were possessed of. In 1738 the first excavations were begun under Royal authority, but the work was unsystematic, and in 1750 to 1760 the villa of Piso was excavated. Piso was supposed to be the father-in-law of Cæsar, and the opponent of Cicero. The discovery made a great stir in Europe, and in 1800 the Prince of Wales, afterwards George IV., undertook to have the papyri deciphered. From 1828 to 1837, and from 1869 to 1875, excavations were carried on, but since 1875 they had been completely stopped. The reason was because of the expense, and because the town of Resina was above, but the British Consul at Naples had promised to inform him of the cost of property, and said that work for many years to come could be carried on without touching any house property of any value. The cost was such that Italy could not afford it, but they ought to be very grateful to Italy for what she had done. The work would be so expensive that he did not think any one nation could do it. It had been his dream to see it done, and the scheme was very simple. It was that the committees should be established in any country having claim to civilisation, to collect funds, and above all there would be an international committee, with, he hoped, the King of Italy at the head. This committee would be trustees of the funds, and communicate with the local committees with regard to the international staff which was to work the site. Last spring they succeeded in gaining the enthusiastic support of the King of Italy and of the Prime Minister. King Edward had expressed himself as deeply interested, and Secretary Hay had written stating that the President of the United States was taking the keenest interest in it, and would put himself at the head of the American Committee. In France, President Loubet had given his consent, and in Germany the Emperor had shown vigorous interest. In Vienna a strong committee had been formed, and the King of Sweden was interesting himself in the matter. The following day he was going to America and on his return he hoped they would be able to form the committee in England.

LONDON TOPOGRAPHICAL SOCIETY.

THE sixth annual meeting of this Society was held in the rooms of the Society of Antiquaries, Burlington House, on Tuesday, under the chairmanship of Mr. F. G. Hilton-Price (Vice-President).

Mr. B. Gomme (Secretary) read the report of the Council, which showed that a steady increase in the number of members continued, and there were now 165 members, as against 156 last year. There were 46 libraries and institutions in membership, and during the year special communications, with full information as to the publications, etc., of the Society, had been addressed to all the principal curators and librarians, both in the United States and the Colonies. The principal duty of the Council during the past year had been to arrange for the publications to be issued for the current year. Their choice fell upon Morden & Lee's map of 1677—a large map of London, Westminster, and Southwark—drawn to the scale of 300 ft. to the inch. They had also put in hand a reproduction of the map attributed to Ralph Agas, and probably drawn early in the reign of Queen Elizabeth. Virtue's version, founded on this map, was well known, and it might be said, without a suspicion of ingratitude, that since the reproduction made by the City Corporation some years ago the means available for work of this kind had been greatly improved. It was a pleasure for the Council to report that the City authorities had promised every facility of access to the rare original copy of the map in the Guildhall Library, while the master of Magdelene College, Cambridge, had been equally obliging in respect of the original copy, which was one of the treasures of the Pepysian Library in the College. These two copies varied in this respect, that age and use had affected them differently—portions which had faded or become worn in the one being in a good state in the other. The distinction of the Society's facsimile would be that it would combine the best parts of each, thus effecting a restoration of the map nearly approximately to its original appearance. With the second volume of the "London Topographical Record," issued during the year, the Council were able to distribute the copies of the book entitled "Signs of Old Lombard-street," which the author, Mr. F. G. Hilton-Price, presented to all members of the Society. All students of London would rejoice that Mr. Hilton-Price was continuing the publication of his further collections on this interesting subject. The contribution in the second volume, dealing with the signs of Ludgate-hill, Ludgate-street, Old Bailey, Little Old Bailey, Ave Maria-lane, Creed-lane, Amen-corner, Warwick-lane, and Ivy-lane, would be continued in Vol. III., which was in preparation, and would complete the matter relating to St. Paul's Churchyard. Colonel Prideaux was at work on the commentary on the plan of the turnpike road from Hyde-park-corner to Couter's-bridge, which would appear in the same volume. The outline of a plan for a new edition of Stow's "Survey of London" would be contributed by the editor, and it was hoped that the volume might be enriched by further valuable papers by some of the specialists and authorities who take an interest in the Society's work. A full record of current topographical changes had not yet been realised. It was felt that if undertaken by this Society such a record must be complete, and cover the whole field. But the organisation of such a result presented so many points of practical difficulty that it might be open to question whether some such account as that given in the Society's first volume, admittedly inadequate though it was, should not be continued in default of a better. As a record of topographical changes at an earlier period the photographs taken by Mr. Wm. Strudwick between 1862 and 1870, and reproduced in the last volume, had been much appreciated. What was now required was a photographic record of all that existed of Old London, which would be a source upon which they could draw for their annual volume in the future. The report also dealt with the decease of various members, including Mr. W. W. Gwyther, F.R.I.B.A., whose loss, it was stated, would be the more regretted because the Society had in its ranks too few representatives of his profession.

On the motion of Mr. T. Blashill, seconded by Lord Belhaven and Stenton, the report was adopted.

The meeting proceeded to the election of the President (Lord Rosebery), vice-presidents, council, and officers; and on the motion of Mr. Fowler, seconded by Mr. W. F. Preedy, a vote of thanks was passed to the retiring council and officers.

Mr. Hilton-Price then delivered an address dealing with the antiquities of Old London, which was illustrated by a large number of objects from the speaker's own collection. He pointed out that there was little remaining in the City of London which might be called Old London—that was what was in existence before the Great Fire of London in 1666. Not only had the substructures gone, but the foundations of the old buildings were being rapidly swept away, and therefore it was to be greatly hoped that someone was keeping a watchful eye upon all new buildings where there were excavations for the foundations. It was specially the foundations which should be watched, and the earth beneath the foundations. In the last sixty years there had been numerous changes in the City, the topography had been altered to a certain extent, and the City had been practically rebuilt. Few of the ordinary people seemed to take any interest in the clearing away of London of the past, but, judging from the many fragments of marble and other things denoting wealth and luxury which had been found from time to time, he could not help thinking that in Roman times London was a handsome city, and in mediæval times there must have been many handsome buildings; while many interesting buildings which were erected after the Great Fire had been pulled down, nearly all the old houses inhabited by bankers and merchants, and the old coaching inns, had gone, while, owing to the value attaching to the sites, a number of churches had also been demolished. In many instances whole streets had been swept away where thoroughfares required widening, and also for railway termini. For the making of Cannon-street Station many buildings were demolished, and the same was the case in Upper and Lower Thames-street. St. Paul's-churchyard had been almost rebuilt in recent years, and outside the City they knew what had been done in the case of Clare Market, Drury-lane, and Westminster. Interesting old houses had given place to fine stately stone buildings, and to erect these buildings the builders had to clear away the old foundations right down to the virgin clay. After the Great Fire in 1666 the greater part of the new buildings were erected upon the foundations of the old buildings, and as nearly the whole City was destroyed a new city sprang into existence upon the *débris* of earlier times. There were before the Reformation several monasteries and religious houses dating from the XIIIth and XIVth centuries in the City, but after the Reformation they were put to more or less base uses. They were demolished by the Great Fire, and new houses were erected upon the splendid old crypts, which were afterwards used for wine vaults, cellars, and even kitchens. As a consequence of building on the *débris* of the past the level of the City had been raised, and a large number of antiquities had thus been preserved which would not have been the case had the present method of digging down deep for foundations been adopted. It was in the digging out for foundations that they came upon layers which belonged to different times, and at times they found the Roman layer went down a very considerable depth. It varied, however, very considerably in different parts of the City, and between Eastcheap and Threadneedle-street it varied from 15 to 26 ft. It was well for them that there had been keen archæologists in the past, who had personally watched the excavations and who had in the proceedings of the Society of Antiquaries and of other bodies handed down their experience and had enriched the British Museum and the Guildhall Museum with their finds. The British Museum acquired the collection of London antiquities which belonged to Mr. Roach Smith, but the Guildhall contained the largest collection of such antiquities. The greatest collector of late years was the late James Smith, of Whitechapel. Smith was a costermonger and a scrap metal dealer, but he visited with his small cart every part of London where there were excavations going on, and he picked up an enormous number of articles. When his house became full from top to bottom he sold the whole collection. He sold one collection to the Guildhall, and he (the speaker) bought another collection, which Smith was pleased to describe as "the whole shoot." Smith could neither read nor write, but had a wonderful knowledge of antiquities, and could describe an article he had disposed of which he had not seen for years. Mr. Price proceeded to deal with a large number of articles of antiquity which had been unearthed at various periods and which are now either in public museums or private collections. In Lombard-street a Roman pavement was found 12 ft. from the surface, and at Foster-lane a pavement, glass, and pottery were found at a depth of 18 ft. Cannon-street was evidently a portion of London thickly populated by the Romans, for numerous articles were found there. At the corner of Camomile-street a pavement was found 4 ft. from the surface, while singularly enough in Lombard-street Roman pavement had been found at various levels. Fine specimens of pavement had also been found in Leadenhall-street 12 ft. from the surface, Lothbury at from 11 to 12 ft., and in Threadneedle-street, Broad-street, and Bucklersbury. Most of the principal Roman buildings appeared to have been on the banks of the Wall Brook, and the course of that stream had been traced by Mr. J. Price. Many brass coins and other interesting objects had been discovered in the black mud of the Wall Brook, and they were found to be perfectly bright like gold. The Wall Brook appeared to have formed the western boundary of the first London city, and Roman cemeteries had been found in Whitechapel, Spitalfields, and the Minories. Later on the Roman city was considerably extended, as was evidenced by the discoveries at various times of pieces of the old Roman wells. Many bronze objects and statuettes had been dredged from the Thames, while a Roman pottery kiln was discovered in St. Paul's-churchyard. Just under London Bridge thousands of coins were found, and Mr. Roach Smith observed that they were dredged up in chronological series, as if they had

been deposited. It was possible that they were deposited on the building or repairing of the bridge. In conclusion, Mr. Price referred to the many interesting objects of everyday use which had been found of dates ranging from the XIIth to the XVIIIth century.

Mr. P. Norman, in proposing a vote of thanks to Mr. Price, said the lecturer had thrown out a hint for a new departure by the Society. They had so far done valuable work in the way of making maps and giving drawings of old buildings, but perhaps even more valuable work might be done by going back earlier and helping to elucidate the problems in connexion with old Roman London. There had been so far no systematic attempt made to explore Roman London, and he felt if they could do that they would learn as much about it as they knew of Silchester.

Mr. F. Ordish seconded the motion, which was carried.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.

A MEETING of the Civil and Mechanical Engineers' Society was held at the Caxton Hall, Westminster, on Friday, December 9, when Mr. H. E. Bellamy, City Engineer of Rockhampton, Queensland, read a paper on "Portland Cement."

Mr. Bellamy having made some historical references to the cement industry, said the engineer, architect, or builder was confronted by no problem more difficult than to say whether a particular kind of cement, when placed in any work, would behave in a pre-determined way. Especially was this true with an artificial cement. The difficulties arose from the fact that tests must be made on a product not in its final stage. With reference to the various tests, he said good Portland cement should be of a grey or greenish-grey colour. A browny colour indicated an excess of clay, and showed the cement was inferior. The test for specific gravity should always be carried out. Experiments which he had made showed that the specific gravity of good K. B. and S. English cement slightly exceeded 3·0, while an inferior cement was only 2·8. It was a well-established fact that, other things being equal, the finer the cement the greater would its sand-carrying capacity be—that was, it would show much greater strength with the same charge of sand, or equal strength with a greater charge. There was no doubt but that the cementitious value of the material resided in the very fine part. To ascertain the cementitious value of the material a new form of testing apparatus—known as the Goreham Flourometer—had lately been devised. It was of very simple construction. The tests of strength might be divided into compressive and tensile tests, the latter including the transverse test made by breaking a beam of the cement. Tests of compression were certainly of some importance, but the apparatus required was rather cumbersome, and these tests were very rarely carried out. The ratio of compressive to tensile strength for the same class of cement was perfectly uniform. It might be assumed that resistance to compression was about twenty times that of the tensile strength. For many years Portland cement was always tested neat. The consensus of opinion, however, was that the test to sand, prescribed by the German Government, viz., 3 parts of sand to 1 of cement, was preferable, as it more nearly approached the conditions under which cement was used. Especially was this test essential if the mortar was to be used in work on the Monier system. No matter how excellent a cement might appear to be in other respects, it was imperative that it be not used if unsound. The temperature of air and water and the quantity of water affected the time of setting. Specifications, as a general rule, contemplated a temperature varying not more than from 10° to 62°F., and the quantity of water for Portland cements was 20 per cent.

Mr. H. Anderson (London) said the enormous variety and the fads of the numerous specifications called for by engineers was most confusing, and difficult and expensive to supply. The standard specification would be issued this month, and it was to be hoped that the complaint would not lie against this as being a stumbling block to cement progress in this country. The terms of the specification he had seen, and it was really very moderate in its clauses, and, to his mind, might have been with advantage in some points made slightly more stringent; but as it was advisable to run before they could leap, it was probably advisable to test the working of the clauses as they would be issued, and then at a later date revise it in the points where it was found advisable to do so.

THE ARCHITECTURAL ASSOCIATION.

A SPECIAL general meeting of this Association was held at No. 18, Tufton-street, Westminster, on Friday last week, Mr. Louis Ambler, Hon. Secretary, presiding in the unavoidable absence of the President, Mr. E. Guy Dawber.

On the motion of the Chairman, seconded by Mr. Francis Hooper, the following new by-law was agreed to without discussion: "The Association shall not make any dividend, gift, division, or bonus unto or between any of its members."

The ordinary general meeting was then held. The minutes having been read and confirmed, the following gentlemen were elected, *i.e.*: Mr. W. Baird, London; Mr. F. L. Hunt, Tooting; and Mr. W. H. Brierley, of Leeds, who was elected by acclamation.

Building Fund.

The Chairman announced the following further donations to the Building Fund, *i.e.*: Messrs. J. Carmichael, 50*l.*; W. Cowlin & Son, 5*l.* 5s.; J. W. Penfold, 5*l.* 5s.; R. F. Chisholm, 5*l.*; George Wragge, Ltd., 3*l.* 3s.; Sir John Taylor, 2*l.* 2s.; C. A. Sharp, 1*l.* 11s. 6d.; R. W. Collier, 1*l.* 1s.; F. E. Lloyd-Downes, 1*l.* 1s.; G. H. Lovegrove, 1*l.* 1s.; G. H. Oatley, 1*l.* 1s.; L. Simmons, 1*l.* 1s.; Neil C. Smith, 1*l.* 1s.; H. Tanner, junr., 1*l.* 1s.; and E. G. Theakston, 1*l.* 1s.

The Late Mr. Bedford.

The Chairman said that many of them had seen the notice of the death of Mr. F. W. Bedford, and all who had done so would have seen it with regret. Those of them who knew Mr. Bedford well would join with him in an expression of sympathy and condolence with the relatives of the deceased. Mr. Bedford, who was a brilliant student, and who carried off a great many prizes, had been in practice in Leeds for several years, but recently he returned to London. All who knew Mr. Bedford's work must admire it, and they would all regret that they would have no more of it.

The motion was agreed to in silence.

On the motion of the Chairman, a vote of thanks was accorded to Mr. F. T. Verity for allowing a party of members to visit his new theatre in Tottenham-court-road on Saturday, December 3; also to Messrs. Allen & Son for providing refreshments on that occasion.

Mr. Ambler also announced the following donations to the library: "Specifications in Detail," by Mr. F. W. Macey, presented by the author; "The Conduct of Building Work," by Mr. J. Leaning, presented by Mr. B. T. Batsford. A vote of thanks was accorded to the donors.

Some Architectural Reflections.

Mr. T. Raffles Davison then read the following paper, entitled "Some Architectural Reflections":

"The architectural divinity which we worship is the cause of much uncertainty and illusion. At one time she is all smiles and charm (when we have just received a commission); at another she is petulant and frowning (when our builder goes wrong, or our design has turned out to be a failure). If we have been enjoying the ecstacy of design, or, better still, the tangible products of it, we see nothing but the bewitching smile of our goddess. But when we are plunged in some of the thousand troubles which seem to dog the architect's path, we find our charmer cold and fickle. You may say this is only the lot of all trades and professions. But it has always seemed to me that a pursuit which needs for its very start and impetus a spirit of inspiration and enthusiasm, the art of architecture is peculiarly liable to rebuffs, discouragement, and disappointment.

Influences.

Sometimes when we regard the calm, calculating, scholarly man who really thinks his own thoughts, we are apt to doubt whether he is really much under the influence of others. Well, in proportion as his work is scholarly, he is very much under the influence of others, and it is a question whether any of us are as free of influence as we imagine. There have been, and are, amongst the ablest of architects, those who hold that the only safe road for architectural development is in the path of tradition, and that no sound progress can be expected except little by little in the development of what we have already laid before us. If this be true, we must acknowledge and yield to influences as one of the prime factors in our life. One can hardly doubt that the monumental treatment of Mr. Geo. Gilbert Scott's Liverpool Cathedral has its being partly through the influence of the late Mr. J. D. Sedding and Mr. Henry Wilson, grafted on to the scholarly ability of the late Mr. Gilbert Scott.

Personality.

And now the question of influence leads on to the consideration of personality. To my mind, for good or ill, we are here for an individuality of existence, and our concern should be with the upholding, and upbuilding of that individuality. For the progress of art it seems to me individuality is the most precious asset. Years ago I remember its being suggested to me to go to a certain place to sketch. When I objected that So-and-so and So-and-so had been, and that, in fact, *everybody* had been there, the reply was: "What is that to you? Have *you* been?" Now this is surely the essence of art. Why, when the Greeks had earned undying fame by their work, was there room for the Romans? Why, after St. Peter's was there room for St. Paul's? Why, after the countless gems of Gothic art need Mr. Scott try to do it again at Liverpool? Because, surely, of the need of individuality to exercise itself—the individuality of our age speaking through the individuality of the architect. Herein lies our hope and our pleasure. If we are to be the characterless transmitters of a type, where does the joy of our life come in? Is impersonality a desirable feature in architecture? Or is it possible? When we think of the distinctions that were expressed in the work of Burges, of Street, of Pearson, and of Sedding, do we not *know* that there is no such thing as impersonality in art? And do we not feel how dull and sad it would be if it were possible? I think if you look round your acquaintances you can carry this study of personality a little further. Is it not the little eccentricity—may we not say the little fault—that gives a flavour to our friends? Should we really like our friends so well were they all quite perfect and ready for Heaven? And can we quite disassociate this feeling from architecture? The quiet, smooth, scholarly work of Pearson might sometimes spell monotony; the vivacious interest of Sedding's work might sometimes mark unrest. Do we, therefore, forget the debt we owe them? Assuredly not, and if they have the defects of their qualities, it serves to drive home and enforce the lesson they had to give us. Now, the emphasis of certain characteristics which make a man into a Smith, a Brown, or a Robinson, give vital interest when applied to architecture. We are told that Nature cares only for the type, and not for the individual; that we must think of architecture, and not of architects, but we need never forget that we have to create the type and the art by means of individual effort. If an architect is worthy of the name, he is sure to stamp his work with a certain something by which you will know it to be his, just as you would tell his handwriting.

A scholar and a reverent student of type will show by his efforts that he is trying to keep them in mind, but his own inclinations will appear through all, and one has only to compare the work of men like Bodley, Champneys, and Jackson to realise how true this is. They were all supplied with the same material, and they have all done something definite for modern English architecture, but they have all made an individual and legible rendering of their art. It is not, of course, by a conscious effort to pose as individualities that this comes about, but by the serious effort to put one's mind into one's work. All good art comes by a following of Shakespeare's advice to be true to ourselves, and not to affect the methods of others; that is, to let our own personality dominate our efforts. Why should we sacrifice our own aims and desires in imitating another man who has been successful in quite different methods? Why stir up the cold soup of the Queen Anne period if we prefer the fiery spirit of the Spanish Renaissance? Why fit up the details of a Gothic church in the archaic simplicity of an Eastern style if we ourselves are sympathetic to the ornate decoration of the perpendicular period? Why adopt coupled dormers which another man has made effective

if our conscience rebels against the costly gutter between them? Why copy the latest competition success if it goes against your sympathies? Why change your style of architecture every week to suit the supposed leanings of each new assessor whose judgment seat you have to face? Why? To catch the favouring breeze that will waft you to success? To show your versatility? To show your largeness of mind? But the architectural studio is not a draper's shop to fit the passing fashion or the client's whim. It is the school in which you are learning to develop your own aim by a steady light of firm belief, and it cannot be illuminated by Will-o'-the-wisps or shooting stars. I think I remember when all gables did not have little kicked-up kneelers; when there were fewer country cottages with long, sloping buttresses; when there were no gable apices like those at Scotland Yard, and when there were perhaps no modern boundary walls built up from pier to pier with inverted arches. Yet these interesting little details by Messrs. Bentley, Voysey, Norman Shaw, and E. S. Prior have been clung to for salvation by many who were drowning in a sea of influence for want of the lifebelt of individuality.

Catholicity.

Some folk might construe this adoption of nice bits into catholicity of mind. Well, if we come to that we must make a strong stand for catholicity of temperament. For no wide culture, no liberal art, can be at its best without it. The architects whose work I esteem most have a charitable eye for the work of others, speaking, of course, of work which can lay a claim to be called architecture at all. It is quite impossible for any two or three, or even twenty or thirty men, to embody all the good there is in the work of a generation. Neither is it possible to pretend that the marvellous ingenuities and graces of a great Gothic church sum up all the virtues any more than do the stately repose of a Greek temple, or the ponderous richness of a Renaissance chapel. You may find telling mass, and a kind of dignified picturesqueness in a great modern brewery, even if you have to come to it direct from the finality of repose and dignity in the pyramids themselves. You have found pleasure in a white glazed frontage in a narrow city street, for its gaiety, if not for its proportions; have felt the stimulus of life and interest in a building where all was bad but the modelled ornament; you have appreciated the quiet simplicity of a building which would have been maddening if repeated in big doses; you have noted many a lesson in good detail where the general shape and sky line of the building was sadly at fault. We all see these things, and the spirit of catholicity is to take the good from wherever it comes.

Restraint.

But the snare of catholicity is its possible degeneracy into a weakening of sound principle and a lack of restraint. From the very outset of our career we all feel that architecture is peculiarly an art for the constant exercise of restraint. Not alone in the thousand and one practical necessities of cost, size, uses of material, etc., which press on us most hardly in our younger days, but the absolute need of reticence and restraint over the impulses of design which we feel more and more the older we grow. A very able architect said to me lately he had been learning the art of "wiping out" all his life. But then his practice had been largely in big things. You can wipe out too freely in some things—in house design, for instance, and, if I may venture to say so, I think the wiping out process in that direction has gone too far with some people. The restraint is not a question of form alone; it is also to be remembered in the matter of colour. A gentleman whose work you all know and esteem said to me the other day he was convinced that you could not make a great or noble building in two or more contrasting colours. I am very much of his opinion, and within a few days of hearing the remark I came across a small country house roofed with grey stone slates, and walled in white rough-cast, which emphasised this opinion. The blending of grey and white in tones of one colour made this house extremely broad and telling in contrast with its neighbours. It is perhaps not the first duty of a house to look big, but it enforced on my mind the opinion my friend had just expressed. I have always left the same influence of breadth in Mr. Hare's municipal buildings at Oxford, which, with all their elaborate detail and picturesque treatment, have that quality by the blending of grey stone slates with the stone walls.

Character.

But with all the need for an ever watchful restraint we cannot afford to lose expressiveness and character. I have heard it said that anything is better than 'sleepiness.' Now this is perhaps a debatable point in architecture. A certain amount of 'sleepiness' is perhaps very good, for you surely want first of all to convey the impression that your building is satisfied with its site, and that so much of repose is imparted to it as will convey that feeling. Sleepiness is greatly preferable to *l'art nouveau*. It is traversing well-known ground to say that the exterior expression of a home should be homeliness, of a bank dignity, strength and repose, of a music-hall brightness and gaiety; in a palace of justice, calm dignity, and so on. But really we find these necessary initial characteristics are often quite ignored. We see the small house built with features only suitable to a large one, and a great house made up of petty triflings. We find bank buildings fussy, restless, and mean; music-halls heavy, lifeless lumps of buildings; hotels dull and dreary; and churches frivolous, and every kind of ingenuity tried to evade the one vital character needful. But the special character needed for each particular building will always be controlled and affected by the personality of the man who designs it. Let your building be ever so simple in style, the ingenious architect will make his ingenuity apparent; or on the other hand, however elaborate in detail a building may be, an architect of a stolid, unemotional character can easily clothe it with deadly dulness. You can be dull with a rich feast, and gay with a poor one.

Just as in going to a certain painter we hope to get his special gifts, so in going to a particular architect you must hope to obtain his characteristic vein of art. For his own home an architect might very much prefer to see the characteristic art of Mr. Smith, but for his business store he might vastly prefer Mr. Brown, who will give him more life and advertisement for his outlay. The quiet, scholarly work may be delightful for a literary institute, but might work with dulness in a house or stable. The designer of broad surfaces and large masses will not so readily give satisfaction in small work requiring interesting and dainty detail; the individual character of the man will be apparent in his work, and should be agood enough asset for all his needs. If we make a trade of art, of course it would be our duty to supply to the order or whim of our client whatever he asked for, and if he desired a Bodelian church, or a Jacksonian college, or a Dawberian house we should make haste to supply it either by servile imitation on our own part, or by the employment of capable ghosts. But this is surely a wrong way to look at the art of architecture. We shall best serve the advancement of the art by trying to put something of ourselves into the study and practice of it. We shall use the knowledge we have acquired by education, and all the helpful influences about us, to do something of our own, and show whatever there is in us of individuality of character.

Disillusion.

Disillusionment awaits us at every turn of our life, and there disillusionments which are to be welcomed. But we must not get disillusioned about everything. It is well to know that if we only pay sixpence a cube foot for our foundations we may likely enough have half-a-crown to pay for our tower. We want no illusions about practical necessities or commonsense requirements. It is well to have no illusions about our friends, nor about the fine quality of our own productions. An architect once told me of the very kind and flattering appreciation of his work which his lady client bestowed upon it, and how he valued it, until one day she asked him if he had seen a very charming house by a certain other architect, which he knew to be the very poorest stuff imaginable. But these knockdown blows to a legitimate pride in our work must not bring a disillusionment which would check our ideals. The architect just referred to did not alter his style to the fancies of his fair client, but has gone on doing better and better work in his own manner, buoyed up by a consistent ideal of high quality. How often one hears the young architect exclaim against the want of proper appreciation of his public, forgetting they are not blessed with his own trained vision and sense. How differently placed is the architect to the musician! In the musical world there is a wide circle of sympathetic hearing to count upon, and really good work seems sure of its reward. But the architect can reckon on no such audience, and beyond the appreciation of his fellows there is little to count upon. Of course, in great works like the Palace of Justice at Brussels, the general public are undoubtedly affected in a sense by the size, ponderosity, and richness of the group, but the finer intellectual qualities of architecture are felt by very few indeed. The sooner a proper disillusionment on this point is arrived at, the more an architect is thrown back upon his own beliefs for guidance and support, the better for him. And it must never be forgotten that the want of this self-support leads architects to look about for direction in the work of others who appear to succeed in pleasing the public. Thus individuality is sacrificed, whilst no really sustaining encouragement is obtained. One has only to watch the lead which is given by successful competitive designs to realise that.

But we must not let the disillusionment penetrate the armour of our faith. We know this to be founded upon the best architecture of all ages, and that our little villa, or church, or stable, is the product of some study and some knowledge of what is right and good in outline and mass, in nice proportion of solids and voids, and in good architectural emphasis and keeping. We have admired the calm repose and stability of the pyramids, the rythmic proportion of the Greek temples, the sturdy picturesqueness of English Gothic, the elegant daintiness of those marvellous mixtures of French Gothic and Renaissance, the rich rococo of the Spanish churches, and the abiding charm of old English houses. We have learnt the spirit of these things, and we know that each of them conveys for us a lesson in architecture which may come every day into our practice. These are the sheet anchors of our art, and whilst we may never build a pyramid or a Greek temple or a Gothic church, we know that we may follow the principles which have guided the builders of such works with safety and success.

Gentlemen, when I look at the productions of our modern architects I often feel that our students need someone at their elbows to whisper in their ears something about first principles, about law and order in design, about inspiration, about self-reliance and personal enthusiasm. Art is a big word—it includes a vast field of human effort, and it is very difficult to talk wisely about, but with all its cold-water douches of needful repression, I feel that architecture ought to kindle a live and enthusiastic desire which would carry the earnest student through his life with happiness and success. A gentleman whose ability is supreme once said to me when going as a visitor to a class:

'I have to visit a class of students to-day, and I wish I knew what to tell them.'

'Well,' I replied, 'all they want to know is how you do it' 'Ah,' said he, 'I'm afraid that's just what I can't tell them!'

That is just it. This gentleman could not convey the steadily balanced enthusiasm of many years' experience to more youthful minds; all he could do was to reiterate eternal principles of good, and to leave it for the natural instinct to adapt and work upon. It is not a shouting enthusiasm which can be of use in architecture (as it might be for the actor or the singer), but I maintain the enthusiasm should be there all the same, or the result of all our hard work will be very dull and lifeless show.

You have, perhaps, taken for granted that bills of extras, prices of materials, valuations, or any question of that kind would be left out of my view to-night. Even if I knew more about them than I do I should still want to take this opportunity to emphasize the essential fact that an architect has to be an artist, first and foremost. It is the only excuse for his existence. The term 'art-architect' is an absurdity. All architects are artists—at least, nearly all. Perhaps 500 out of every 5,000 are, at all events.

It is impossible to deny that the man who can advise as to the best kind of foundation, the best and cheapest building materials, who can secure the best builder at the lowest price, who can avoid costly encounters with the authorities or neighbouring property owners, who can obtain the best return for the building outlay, who can insure a sound and durable building, is a most useful person. But that alone would not constitute him an architect.

To be an architect worthy the name he must be something much more than this. Many an architect with all his ability is less of an architect than the clerk whose artistic instinct has failed to bring him more than a fair living. But, strange to say, whilst the man who creates the beauty of a building is often ill-paid and unknown, the businesslike man who poses as an architect trades on it to most profitable results. This has long been a standing reproach to the profession that the value of art is not even paired off as equal with the knowledge of business affairs and practical details. We must admit the great importance of business capacity, and of practical knowledge, but the art of beautiful design is an instinct that is the very crown and flower of our profession, and until this is better realised we shall never do great work; whilst a lasting service would have been done to London had the practical knowledge and skill that created the Tower Bridge been really emphasised by lines of beautiful formi, instead of being masked by a falsity of architectural trimming which great engineers themselves must despise! In this country the art in such things is a matter of ornamentalism which can readily be applied and bought at a very small cost: it is not a development of the lines of construction into beautiful form, which could only come about by that uncommon genius, an artistic engineer, or by a thorough and serious collaboration of architect and engineer.

Your motte says, 'Design with beauty, build with truth.' These two things have got to be done together. Building with truth alone will not do, though some of the latest apostles of art would almost seem to suggest it will. Truth is often a very disagreeable thing by itself. The truth alone about many of our modern street frontages would be a terrible exhibition of girders and stanchions, though it is even worse when clothed with the beauty of false ornament.

No more difficult motto could be devised than this watch-word of the Architectural Association. We are delivered over into the arms of these two glorious creatures—truth and beauty, and it is not difficult for any student of human nature to know which of them makes the easier conquest. Beauty is very captivating even when her falsehood is only half concealed, whereas truth is always a little frigid. Beauty is always luring us on into unknown paths of wonder and delight. Truth is ever arresting our steps with warning in her voice. Beauty is always kind and silver-tongued; truth is always reading us a lecture; truth often seems to hate beauty's presence, but beauty always pretends to think well of truth. Truth seems grudging and niggardly, whilst beauty is prodigally generous. It really seems easier to cast in our lot altogether with one or the other, but very difficult to please both together.

One of the worst difficulties about the whole matter is that men have been trying for ages to find a sensible answer to the questions: What is truth? and What is beauty? and have been unable to do it. Of course, we all know that there is a sort of answer to be made to both, but it will depend on the character of each individual what answer he himself makes. Here is the point that we are called upon to decide. What shall be our critical balance between these two often apparently opposing elements, and how far shall we allow ourselves to be guided by one or the other? You can no more be absolutely truthful in your design than you can be in your speech. We none of us want to be the most perfect man in the nastiest way possible. We cannot afford to allow the jealousy of truth to banish beauty, and we must be ever on our guard against the lurking falsehood in beauty's heart. Who of us has not admired the effect produced by a good mass of walling in a position where it was not only perfectly useless, but horribly expensive? And can we find it in our hearts altogether to blame a really clever architect for doing such things? We have to 'shut the other eye' very often in architectural design. I could illustrate my point by references to some of our best architects.

But what I want to emphasise is the peculiar kind of tight-rope walk one has to make between the abyss of dull utilitarianism on the one hand, and the deep waters of ideal beauty on the other. Shall we say one word in passing for our practical friends who can tackle the many difficult problems of construction, of prices, or of tactful management of affairs which are so very useful to the successful architect? One need not undervalue the services of such men whilst pointing out the high ideal of artistic endeavour which should form the goal of every real architect. It has almost come about, nowadays, in the bustle of modern life that we need another race of specialists who might be called architectural surveyors, and who without any trouble about æsthetics might devote themselves to the more practical problems which are their delight. Of course, they would be sane, capable men, and would probably be registered! They would earn the confidence of everybody because they could nearly always see that buildings cost less than was expected. They would not be hoodwinked by builders, quantity surveyors, clerks of works, or committees; and, generally speaking, would avoid all the faults of the artist.

The real artist must, however, always risk something. His mind is filled with ideals; he is generous not only with other people's money, but with his own time and strength, and if he completes his aims he is content to sacrifice a good deal of personal comfort. He thinks more of his art than its profession. He hopes to leave in concrete form some thoughts of beauty which have filled his imagination, and which may bestow pleasure on others. He is not engaged in tasks, but in delight; therefore, if he is not paid adequately in coin or goods, he has still had reward. We have heard of a good many such men. Literary artists who, to the commercial mind, have lived a life of mere suffering toil, but who to themselves have been blessed with visions which lifted their eyes above all their troubles—makers of pottery who were not owners of great works of world-wide fame, but were merely toiling away in obscure places to get glaze or colour to their liking, and who lost everything else to obtain it—painters of pictures who were willing to be accounted mad so that they enjoyed their own dreams in their own way—designers of great architecture who filled the offices of poorly-paid surveyors so that they might live with the building-up of a fabric that they loved. These are men who really live their lives, and of such rank and kind should be the architect. Through the thousand and one worries that encounter the realisation of graceful designs—the evil of bad workmanship, the folly of committees and the scamping of builders, the adjustment of accounts, the irritating restraints of cost and materials, bad building laws, bad assessors, and bad competitions—the architect must still live up to his ideal, and finally leave some impression of his art in the finished structure. The more he does this, the less he will be valued by his clients, the greater plague he will be to the authorities, the more annoying to his builders, and the more exacting to his employees, and, to crown all, the less he may be understood by the public, or appreciated by the critics. I can tell you that recently a well-known architect sent in with pleasurable anticipation to his clients a design which contained three features he had never carried out before, that he had designed with especial pleasure, and not relied upon to give interest and expression to his building. I saw him afterwards, and he told me that his committee with prompt and unerring discrimination ruled those three features out. They were not the best judges, but they were the dictators, and, as the late Geo. Gilbert Scott says, they got all they paid for in a good practical building, and the art, which was by-the-way, could never have been paid for adequately. The hardship lay not with those who never realised their loss, but it was a sample of the rebuffs an architect has to meet.

You may think the comfort is cold, and the reward visionary, which a true architect may expect, but art is a matter which lifts us above the beatitudes of trade, and the artist should learn to look for rewards from the same source whence his inspirations flow. Directly the breath is out of a man's body, the measure of his days is complete; his reputation is very much like his legacies of real property—it soon fades away. It is surely well to build our joys upon something less unstable than public estimation or something less uncertain than personal belongings.

For the artist the one great lesson to learn is to find the highest reward in the work itself, and that no art does more pertinently apply than that of architecture. It is so undervalued by the public, so little understood by the critics, that we are best to form our own public and our own criticism. We are told again and again that the profession is not one in which fortunes can be made except by the very few. But all who enter it can set themselves determinedly to find their pleasure in its practice; to have great ideals and live up to them. The art is the noblest and most useful the world knows. It ministers to the wants and to the sentiments of all, and the architect may find happiness for himself beyond the common measure in learning how to design with beauty and build in truth. You cannot suppose I have followed the doings of architects for many years, and made over ten thousand drawings of architecture, without realising that there is a way to successful accomplishments in the profession. There are men who one admires as architects, and respects as personalities, who have kept alive their efforts through years of earnest work and sustained endeavour. They point the way for us all to emulate. The lesson of their work is its persistent hold on what is good, in the constant thought of fine outlines, good proportions, refined details, and expressive character. You can do no more, and you can do no better, whatever style you affect, or however eclectic you choose to be. You can aim high even in the simplest work. As surely as you do this you will find out what architecture can really be, and realise to the full the difference between the ephemeral meanness of a Cockney villa and the elemental grandeur of the pyramids."

In the discussion which followed,

Mr. Francis Hooper said he should like to propose a cordial vote of thanks to Mr. Davison for his paper, which had been read with such enthusiasm. The Association welcomed him as an old friend—if not personally, yet through his sketches, which had been of such value to them, not only in drawing attention to the beauty of the country and the architecture of bygone days, but in bringing before architectural students the best work of our best architects, and for that he deserved the thanks of them all. Many of the remarks in the paper were to some extent truisms, and if tending to make his audience exalt the work of architectural designers his labours would not have been in vain. In reference to one part of the paper, it was the need of every member of the profession, whether old or young, to try and appreciate the good work done by other people. It was so easy to find fault, and it was so difficult to do well, and Mr. Davison made a point of urging that all should try to acquire the spirit of catholicity, and take the good from wherever it comes. At the close of his paper Mr. Davison drew attention to the sacrifices which had been made by men in the furtherance of their art, and that should be of encouragement. There were to-day as self-sacrificing men as in the days of Palissy and the painters of Italy, Holland, and Spain. There were men who were seeking ideals, and their work might be but small, yet it would last.

Mr. A. Cox said he had much pleasure in seconding. He hoped to hear Mr. Davison lecture again, for he was always so full of enthusiasm.

Mr. Louis Jacob said they had all enjoyed Mr. Davison's admirable paper. He had been very much interested in the remarks as to individuality, for whenever he read those discussions which occasionally took place on originality in architecture he had always thought that the speakers had got hold of the wrong word altogether. There was no such thing as originality, for there was nothing new under the sun. What was wanted in architecture—and Mr. Davison had expressed it well—was individuality. As to the closing remarks about the men who lived long ago striving for the success of their ideals, that reminded him of the definition he had heard of heroism, *i.e.*, a giving out of oneself. Every true and lasting thing which we could do must be heroic, and that could not be without that element of self-sacrifice.

Mr. A. H. Belcher supported the vote of thanks. There were two points impressed on his mind, and the first was as to individuality. He was glad that had been mentioned, for it got rid of the question so much talked about as to styles. If they studied architecture with a view to carrying out the motto of the Association, *i.e.*, to design with beauty and build in truth, and kept that before them, he did not think they would be troubled as to which style to design in, for they would carry

out what was required by means of their individuality, and with the knowledge they possessed. The other point was as to business. He felt that they should remember that they should carry out to the best of their ability all the wishes of their clients. Mr. Arnold Mitchell made some excellent remarks some time ago when he said that the architect lived to please his client. The client paid for the work and the design, and architects should endeavour to please the client even down to the smallest detail. It was said that some architects would build a house and forget to put cupboards in the rooms. In some rooms there was a difficulty in arranging cupboards, but the point should always be kept in mind, for if they could get a cupboard in every bedroom they would please the client in most cases. It was the same in other little matters. If they could put the hot water cylinder at the bottom of a cupboard, and arrange for the upper part to be used for linen, there again they would please the client. If they pleased the client in small business points they would find that the house would become beautiful to the client even on those grounds.

Mr. H. Passmore said they must all be obliged to Mr. Davison for taking them into higher heights of architectural thought than what they were accustomed to. As to restraint, he entirely agreed with Mr. Davison when he said that restraint had been rather overdone. To knock a square hole in a wall and call it a door was hardly making architecture, though, of course, no one could over-estimate the value of proper restraint.

The Chairman, in putting the vote of thanks, said he should like to express his admiration for Mr. Davison's work—both his sketches of old buildings, and his drawings of modern ones. Many of the points in the paper had been treated in an admirable and poetical way, and he appreciated very much what Mr. Davison said. As to originality, what was often called by that name was mere eccentricity, and he was glad that Mr. Davison had drawn the proper distinction between individuality and originality. As to sketching, some people took to making collections of drawings of works of art which were admired, and of which they desired to have records, and this was an important point; it was not merely a question of individual study; one tried to add to the accumulation of records for the use and pleasure of others. Mr. Davison said they ought to try to see beauty or beauties in everything. He quite agreed with that, for the importance of that was very often under-estimated, and one tried to find faults rather than beauties—not only in modern work, but in architectural work of all kinds. One was so apt to criticise and express dislike without looking for the beauties which were often to be found. He also agreed as to "wiping out" having been carried too far. In some designs which had been seen in recent years one could only describe the buildings or the styles as archaic; the square hole for the door, and the plain masses of brickwork, or whatever it might be, with absolutely no ornament or moulding to give it relief, was carrying restraint too far. He was glad that Mr. Davison referred to the beauty of buildings of grey stone and slates, and he (the speaker) might mention the beauty of "rustic" slates, which came from Precelly, in Wales, and were of a pale green colour, with a most beautiful film or covering of golden yellow and brown tints. Everyone would agree with Mr. Davison that all buildings ought to express their character as far as possible. One could not have that too often impressed on one. With regard to "ghosts," it seemed to him that a man who employed "ghosts" was not an architect at all in the proper sense of the word, but a tradesman—a purveyor of architecture. Mr. Davison referred to the appreciation of music, and distinguished that from the appreciation of architecture. Of course, the appreciation of music was largely a natural gift; one was musical without any special education, and could appreciate to a large extent even the most classical, as well as what was called the music of the future—Wagner, or any modern composer. The more one knew of music the more one appreciated it, but that knowledge was not essential to the appreciation of music as knowledge of architecture was to its appreciation. One could not appreciate architecture without some education in architecture. As to the question put to the architect who was going to hold a class, there was another question which might be asked. In addition to "How to do it," they might ask, "How do you get it to do?" As to the expression "Art architects," it was a most ridiculous combination of words. An architect ought, of course, to be artistic, and if he were not he had no right to call himself an architect at all. It was just as ridiculous to use those words as it was to use the expression, "art colours." Mr. Davison's general conclusion seemed to be that if an architect was an artist that was sufficient.

Mr. Davison: I am afraid I hardly go so far as that.

The Chairman said it certainly was not his view. An architect must be, to some extent, a business man and a scientific man. The man who was an artist only could not expect to be successful; he must be much more than an artist only. Architects who were only brilliant designers, and were no good as business men, failed to get the amount of work they ought to get, and for that very reason. When one heard of architects whose works cost three or four, or more, times more than the client wished to spend one could not be surprised that the client ceased to employ them, and that other men were employed—men a little less artistic, perhaps, but with more business capacity. It always seemed to him that those architects who were artists only should be associated with business men as partners if they found they did not understand the business part of the profession. That was their only chance of getting on as they deserved. Very few architects could be satisfied with the beauty of their own work—they had to build up a reputation as well as erect buildings, and they could not expect to get more work if they always exceeded the cost a great deal; they must consider their client's as well as their own interests, and they must not think of beauty at all cost. Nor should the architect be the enemy of the builder, as Mr. Davison appeared to suggest. He (the speaker) did not hold that view at all. An architect ought to look upon the builder as his friend, as the man who carried out his works, and without whom he (the architect) could not expect to succeed in his work. Architects could not put up their buildings with their own hands, and they depended on builders to realise their creations.

The vote of thanks was then put to the meeting, and very heartily agreed to.

Mr. Davison, in response, said he looked upon the Association almost in the light of a personal friend. He had wished that some practical gentleman had spoken and given a corrective to his dreams and visions. As to the main object he had in view, what he had been saying was the sort of thing that might have been told to an assemblage of cobblers or of the House of Commons—earnestness and truth. The only difference with architects was that they had to add beauty to that. There was no need to urge anybody to follow the pursuit of beauty; we all follow and were all the victims of it. They had to apply the corrective, to use the instinct for beauty entirely subservient to the austere goddess of Truth. That was the finality of all things.

The Chairman announced that the next meeting would be held on January 6, when Mr. A. Cox will read a paper on "Libraries."

The meeting then terminated.

THE SURVEYORS' INSTITUTION:

Bricks and Tiles.

An ordinary general meeting of the Surveyors' Institution was held on Monday afternoon at No. 12, Great George-street, Westminster, S.W., Mr. H. T. Steward, President, in the chair.

The minutes having been read and confirmed, Mr. J. C. Rogers, secretary, read a list of donations to the Library and the Library Fund, and on the motion of the Chairman a vote of thanks was accorded to the donors.

Mr. J. Jopling then read a long paper entitled "Notes on Clay-Working, More Particularly Bricks and Tiles." In the course of his remarks he said that there are between four and five thousand brick and tile works in the Kingdom, employing a large number of hands and a huge amount of capital, much of the latter being unproductive. The author gave a description of the various kinds of bricks and their methods of production, commencing with—

Stock Bricks, or London Stocks.

This description, he said, was, as a rule, given to hand-made, clamp burned bricks, although large quantities not called stocks were made in exactly the same way, in a mould on a stock, but were kiln burned. They might therefore take it that as a rule a stock brick was clamp burned. The system under which they were produced was a very ancient one, in many ways hardly varying at all from that pursued in the times of the ancient Egyptians. The method of production was shortly as follows: The brickearth or clay was dug in winter, and curfed up to let the weather get at it. Some of the earth was washed in a mill, screened, elevated, conveyed by wooden shoots or perhaps pumped through iron pipes and delivered on the top of that already put up. Chalk, in varying proportions, was also washed into slurry, and added. When the water had been run off ashes (called soil) were then added, all in perfectly regular layers of even thickness. The actual making lasted through the fine weather of late spring, summer, and early autumn, about six months, according to the weather, and was conducted as follows:—The temperer breaks into the back, or heap of prepared earth, cuts down the layers of material already referred to into a heap, and wets, mixes, or tempers it. It is then taken to the pugmills by tram or barrows and pugged. The pugmills are so arranged that the pugged dirt is delivered to the moulding tables, and from the moulder to the hack ground, with the least possible labour. At the moulding table the moulder and his assistant, the walk flatter, takes it in hand, and the clot, or walk of clay, for each brick, having been flatted, or worked roughly into shape by the walk flatter, the moulder moulds the brick, places it upon a pallett board, and then on to the page, or direct on to the off-bearing barrow. The off-bearer wheels the bricks to the drying ground, and hacks them up to dry, they are in due course skintled, and when dry wheeled on a crowding barrow to the clamp, set, and burned. When burned sufficiently, the clamp is broken into, and the bricks sorted and loaded or stacked, as the case may be. Some stock bricks are moulded five or six at a time (instead of moulding by hand) by means of a combined pugging and moulding machine, all the other operations being the same, but in this case the material has to be somewhat softer, and consequently difficult to pile on the hacks, and taking longer to dry.

The product of a clamp varies a great deal, and the bricks are called stocks, hard, yellow, bright, and washed stocks, shippers, grizzles, place, shuffs, and burn-overs, the latter being those under burned, and to be burned over again. All of these vary in value, although they have cost the same to produce. Much depends upon the burner who manipulates the draught by means of clamp boards. The fuel consists of the ashes, or soil contained in the body of the brick itself, and breeze in layers, between the bricks, at the lower part of the clamp. In the ordinary way all the bricks in a clamp, except shuffs, should stand the weather, although place bricks are generally used for internal work. A well-made, properly burned stock was one of the best all-round bricks for use, and he, for one, was sorry that this system is being extinguished; but it is practically impossible to burn a clamp with the usual fuel without giving off fumes that are very objectionable, if not injurious to health, and so far he had not been able to discover anything to take satisfactorily the place of the ashes. Some of the very finest examples of brickwork existing, both as regards appearance and durability, are of stocks or clamp burned bricks. Look, for instance, as regards strength and durability, at the brickwork in heavy railway work, arches, etc., all over London, built many years ago when the rush was on, and anything that looked like a brick was accepted. Although designed to carry traffic of less weight, speed, and frequency than is now the case, the majority of the work is as good as ever, and unless removed, will be good when much of the work of late years has gone.

Plastic, Hand-moulded, Kiln-burned Bricks.

These bricks, produced very much on the same lines as the stock brick, except that they are burned in kilns instead of clamps, comprise the highest quality of bricks we have at command. The material is, or should be, dealt with as before described, except of course that in the case of reds no chalk is added, for lime in any form is fatal to a good red colour. Ashes are of course not used, and sand is used for mixing with the clay, and for shading the washed earth, when drying in the washbacks. For buffs or white bricks, sand from the river is needed. They are moulded in the same way as stocks

but more carefully, and in wooden moulds instead of steel, and the drying, whether in the open or in sheds or dryers, needs careful watching. When dry, they are burned in kilns, with coal as fuel. Some are pressed, this being usually done in the sheds with portable presses, when the brick is leather dry. Ornamental bricks, or odd stuff, are moulded in box moulds, not on a loose stock. The product consists of various qualities and shades of red, buff, white, etc., according to the material used and varying also with the degree of heat applied in burning. From the quality point of view we get the best in this class, and he personally preferred, so far as appearance goes, a sand-faced brick to those with a smooth face.

Efforts have been made, with considerable success, to supersede hand moulding by using moulding machines for high-class facing bricks in order to avoid the irregular application of moulding sand, and yet turn out a sand-faced brick. Some of these machines are worked by wheel, or lever, others are driven by power. The cracks and flaws in this class of brick are usually the result of carelessness on the part of the moulder in preparing the clot or cleaning his mould, and there is great difficulty in overcoming this, for the liberal use of sand lightens the moulder's work. Cutters and rubbers, as well as odd stuff, require great care throughout, and in some cases the whole of the material is washed and carefully screened. Plastic, hand-made, kiln-burned bricks are probably the most profitable to the maker, their extra value being much in excess of the extra cost.

Plastic, Machine-made, Kiln-burned Bricks.

An enormous quantity of excellent bricks are produced at a moderate cost by this system, and in view of the fact that clamp burning has fallen into disrepute upon ordinary sanitary grounds, it was his opinion that the plastic, machine-made, kiln-burned brick is the common brick of the future, whilst a goodly proportion of the total would be excellent facing bricks. Extra care in handling and pressing will (apart from the sand-face appearance, which, of course, is a matter of taste) give results in quality and colour equal to the hand-made bricks. For all general purposes they are strong and hard, if properly burned will stand any weather and any strain that can be put upon them in practice, and, what is more, they can be produced at a low price. The method of production is to dig the material, sometimes to weather it, more often to convey it direct from the face by barrow or tramway to the machines, and having machined it in whatever way one's judgment or experience dictates, a stream is expressed through a die on to a cutting-off table, where it is cut by wires into bricks. These are conveyed by barrows or on palletts and cars to perhaps an open drying ground, but preferably to a drying shed or dryer, and there dried. If dealt with in a tunnel or suchlike dryer they remain on the cars, which travel on rails from the machines to the kilns. If partly dried in a shed they are racked up, then pressed or trimmed, and afterwards passed through a dryer, but this applies more particularly to pressed facings and ornamental bricks. If the clay is very strong, that made into common bricks may have a small percentage of coal dust incorporated in the body of the brick, but this requires great care, and is of doubtful advantage.

Dry, or Semi-dry, Machine-made, Kiln-burned Bricks.

In this system you have the acme of cheapness, or, rather, low cost. Makers of this class of bricks, and of the plant for producing them, call them by all sorts of names, such as dry process, semi-dry, semi-plastic, stiff plastic, etc., but it all means the same thing, that is to say, it describes a brick in the manufacture of which the object in view is to eliminate water as far as possible, and thus save the expense of drying, depending upon enormous pressure and the burning, to so consolidate the various constituents as to make the brick homogeneous, but actual results in this case fall short of theory according to the material used and the way it is handled.

The system is as follows: The material is dug and kept as dry as possible (if too damp it is dried in sheds just as bricks are dried). It is then worked by pans or disintegrators into granular form, screened, elevated, and conveyed to the moulding machines or presses, thence direct to the kilns, where it is burned with coal fuel. The product is good in appearance, and is much in favour as a common building brick, its very low price being a great inducement.

This class of brick has been much improved of late. His experience, both in making and using them, went back nearly thirty years, and although the process is the same, the detail operations have been much improved and the product is more reliable than it used to be. In his opinion, these bricks, while most useful for filling in, or backing external walls above the damp course, and for all internal work (especially if not to be plastered) are not suitable for external work, foundations, or chimneys, and should certainly never be used for arches. The outer skin is intensely hard and dense, but the same degree of density throughout the brick cannot be transmitted by pressure, and the water contained in the brick is forced through the dense skin by the burning, causing minute cracks. Through these cracks the weather operates, the outer skin comes away, and this is soon followed by disintegration of the body of the brick.

Various other Bricks.

Speaking of other bricks, the author said:—"Blue bricks from the Staffordshire district have a great reputation for heavy work, paving, and many other purposes, but there are the real blue bricks and the so-called blue bricks, the latter only blue outside by reason of their being moulded in manganese or like material, the body of the brick being a dull red, and softer than a genuine blue brick. For strength and durability, apart from appearance, blue bricks cannot be beaten, but by reason of the heavy firing they undergo, and more particularly if pressed, the outer skin is dense and smooth, hence they are not desirable for arches. The hard, smooth skin prevents them from adhering to the mortar or cement, no matter how good it may be. This must have been palpable to anyone who has closely watched blue bricks being used. The smooth skin in laying attracts a film of water and does not adhere as it should. My own opinion is that this had a good deal to do with the regrettable viaduct disaster that occurred lately on the Great Western Railway."

A Standard Size for Bricks.

As to a standard size for bricks, the author said:—"Considerable attention has been given of late years to this question. . . . At one meeting I expressed the opinion that, to bring about a standard size, architects, engineers, and surveyors, in whose hands lies the power of specifying what they desire, should fix upon a standard size and specify it. The brickmakers would very soon supply what was specified. Since then a standard size has been decided upon, and that is about as far as we have got. There is no doubt it would be desirable to have one size applicable to the whole country, but custom has fixed the size in the Midlands and the North far in excess of that in vogue in the South; and it will take time to bring the conflicting ideas into line. There is little or no mechanical difficulty, and we can all help, but you will not, I think, get much help from the brickmakers, for there seems no unity of purpose among them, each individual or firm playing his own game, and cutting his neighbour in the most unreasoning manner. When you specify that the bricks shall be of a standard size, it ought to be clearly defined what deviation will be permissible before the bricks (otherwise perfect) can be rejected as not of standard size. Unless this is done hardship will result, for the rejected bricks, however good, would at once become of less value on the market, apart from the expenses attending rejection. This is all the more important, because in spite of all that is said by patentees and others regarding kilns, dryers, and machines, and by the competing manufacturers themselves, the fact remains that no matter by what plant or process produced, or in what kind of kiln they are burnt, there is a variation in the finished size.

Testing Bricks.

Many manufacturers make a strong point of their certificates giving results of crushing tests, etc. I am afraid I do not attach much weight to these, not that they are not genuine and correct, but they seem to me almost irrelevant. It is difficult to conceive in practice a properly burnt brick of any kind, in a position where it would be crushed by the superincumbent load. I have never seen such a thing. Of course, we have all seen cases where, through negligence, odd, under-burned bricks have been used which have to be replaced, but this does not apply. If by way of illustration it is estimated that the maximum pressure would be 1 ton on the square foot, and you use bricks that you know will carry 10 tons, why be influenced by a certificate setting forth that certain bricks will carry 30 tons? There is no advantage whatever. Among other tests is a rattling test. This I cannot understand. We try to avoid rattling bricks, and bricks are made to build with, not to be rattled, and no one would say they are earthquake proof. I presume the idea was to note the effect of the rattling on the arris of the brick; if so, would it not be better to watch the effect of the handling they would receive in actual practice?

Tiles and Pottery.

Tile making is an important branch of the clay-working industry, and the demand for tiles is increasing. I am glad it is so, for although slates are a most useful and economical roof covering, we shall all I think agree that, as regards appearance, health, and comfort, tiles are preferable. Let your eyes roam over the suburbs and country towns, and note the effect of the red tile as against slates, while the difference of those living in the houses can only be realised by those who have tried both forms of covering. Of course, the timbering must be somewhat heavier for tiles, but really the difference in cost is not much, and tiles are made now so thin, accurate in size, and regular in camber that they compare more favourably than ever as regards weight and lying close. Whenever I have control of new buildings on estates, nothing would induce me to allow slates to be used for roof coverings. In the manufacture of tiles the processes, except in a few details, are much the same as in brick making. Of course, mild, sandy brick-earth will not make tiles. The bulk of those on the market are machine made and pressed, but there is still a demand for hand-made, sand-faced tiles, which, although thicker and less regular in shape, are preferred by many for their better appearance. Ornamental, hip, valley, ridge, and other tiles are, of course, used with the plain roofing tiles, and are made from the same kind of material, the majority by machine (hand or steam power), while some of them, together with finials and such like, are produced by hand. Pottery for building, domestic, garden, and ornamental purposes is another branch. A plastic clay, tough and elastic, is needed, and the common London clay makes very good ordinary pottery. The preparation of the clay needs more care than for bricks, or even tiles, but how this should be done depends entirely upon the clay itself and what form or class of pottery is to be produced. Drying is effected on palletts, racks, or shelves, in sheds artificially heated. There are many ways of doing this, but I have found the small bore hot water system the most easily controlled and economical, requiring practically no attention, except to the furnace, and that but little. The burning is generally done in intermittent kilns of the circular down draught type. Common goods are set open to the fire, the better class in seggars, and the closer the goods can be nested, or packed together, consistent with a proper draught, the better they will be burned and the less fuel will be used. This remark applies to all kilns and all clay goods. Prices for common pottery are small, but a fair profit can be made."

The author then spoke at some length as to starting, etc., new works; transport of the material and the product; management of works; supervision, stocktaking, book-keeping; the rating of brick fields; transfer of land for clay working; valuations; and dryers and kilns; fuel consumption, etc.

In the discussion which followed, Mr. W. E. Woolley proposed a hearty vote of thanks to Mr. Jopling, and in doing so referred to the old pantile as being an excellent material for roofing, especially for roofing farm buildings, and it had this advantage—it was easily repaired. He was glad that Mr. Jopling recommended canal transit for bricks. In his opinion, more use should be made of the common brick in buildings and less of the ornamental brick. Fine old brick buildings could be seen in the southern counties—beautiful old farmhouses, etc.—and in their construction would be found none of the ornamental brick work he referred to; the effect had been obtained by the proper use of the ordinary red brick.

Mr. J. L. Crouch seconded the motion, and referred to the difficulties in the way of the standardization of bricks—the great difference in the thickness of the bricks made in the North as compared with those of the South. The Institute of Architects allowed a margin

in its standard, and when a margin was allowed the standard ceased.

Mr. G. Tucker said that Mr. Jopling had referred to the unsuitability of blue bricks for heavy arches, but if the author had said that pressed blue bricks were not suitable he would have been more correct. The wire-cut blue brick, with its face rough, was admirably adapted for arching; there could be nothing more substantial than a blue brick wire cut, and that applied to almost every brick used for similar purposes. Dry pressed bricks were of various qualities—in some districts they were good and in others they were bad. In his opinion the best bricks produced at the present time were hand-made bricks.

Mr. Thomas Blashill said that the question of the standardization of bricks had been thoroughly worked out, and to that end the Science Committee of the Institute of Architects were assisted by brickmakers, engineers, and others in working out the matter two or three years ago. The result was the R.I.B.A. standard size of bricks, and he suggested that that might be embodied in the paper.

Mr. E. W. Hudson and Mr. W. Eve having made some remarks, the vote of thanks was heartily agreed to, and Mr. Jopling replied.

It was announced that the next meeting will be held on January 16, when Messrs. A. R. Stenning and Menzies will read papers on "The Form of Rural Building By-laws."

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION:
VISIT TO A NEW THEATRE.

WHEN the old Prince of Wales's Theatre, near Tottenham-court-road, was closed playgoers felt that London had lost one of its historic places of entertainment, and certainly the lapse of some twenty years, during which the old buildings were in process of decay, has given little hope of restoration. It will, however, be of considerable general interest to know that the past associations are to be revived in a fine new playhouse about to be opened—a house in every way a splendid addition to the increasing list of London theatres.

A large body of members of the Architectural Association visited the new buildings on Saturday, December 4, by kind permission of the architect, Mr. F. T. Verity, who, together with his chief assistant, Mr. Gill, described the structure and explained the methods by which the difficulties of the scheme had been overcome. The following notes are intended to convey general impressions gained from a tour of the theatre, to which it should here be said no name has yet been given.

Although excellently planned so far as the seated audience was concerned, the old theatre was terribly deficient in the extent and nature of its approaches and outlets, and this may be said to have been the main reason for its compulsory closure. We gave a historic reference to the building on October 26, 1901, mentioning the founders and some of the more important players who achieved many triumphs within its walls. The whole of the old premises were demolished last year with the exception of the original portico spanning the pavement in Tottenham-street, now marking the new stage-door. In order to provide exits to two streets, and to conform to other L.C.C. regulations, properties bounding the old site on the west and south were acquired, so that the site becomes practically doubled in length and in width for the new scheme. The north-west corner is planned as a two-floor restaurant with basement kitchen and offices, and the uppermost stories are arranged as residential suites, part of which overlap the theatre buildings.

The main entrance is now transferred to Charlotte-street, and other entrances and exits are provided in Tottenham and Pitt streets, thereby giving excess in means of escape. The generous space in the halls and gangways is one of the many wise provisions in the design.

With regard to the exterior, it is to be regretted that the Charlotte-street, or principal front, has little to proclaim the presence of a fine playhouse; the stone doorway is massive enough, but the superstructure, faced in brickwork with cement dressings, loses force by the smallness of parts necessary to the restaurant and flats already mentioned. The opportunity for the broad masculine treatment of a façade is supplied by a theatre in such a way that few public buildings offer, but the designer is not always responsible for omitting to seize the chance.

To the interior the importance of a theatre belongs, and in the example under notice no pains have been spared to produce a convenient and roomy house. The first impression received is that here is a playhouse designed and decorated by one mind—a truly architectural interior, even to the drop-scenes depicting Hampton Court Palace and the Palladian bridge at Wilton. The effect is satisfying to the æsthetic mind, although it may appear heavy to the lay observer; but, it is extremely gratifying to find that the "gilt-compo" demon has been exorcised. The seating accommodation of this "two tier house" is, approximately, for 1,250 persons disposed in almost equal groups in stalls, pit, dress and upper circles, and gallery. Only two private boxes, one on either side of the auditorium, are provided, to which unusual prominence is given by making them large structural features taking up the minor order of the interior. The cornice of this order is carried over the segmental arch of the proscenium opening, which makes a welcome departure from the hard, square outline of the universal lintol form. The principal innovation, however, is the introduction of two flights of steps in the auditorium descending from the dress circle to the stalls, and this produces an effect as pleasing as it is unusual. Each of the staircases passes below one of the private boxes already referred to, at which point a doorway leads from a half-landing to a refreshment saloon, so that occupants of the best seats of the house have ready and convenient means of retiring. Commodious saloons are arranged for the pit and upper circle.

We should say that this theatre is capable of rapid emptying, for, practically speaking, four exits are provided to each part of the house—two at the upper and two at the lower levels. The "sighting" of the seats is very satisfactory throughout, and the gallery is liberally considered in the matters of space and view. We anticipated that some mechanical means of ventilation would have been introduced to assist the natural method employed to purify the auditorium—especially in the gallery—but no such precaution is considered necessary. Some underground departments, however, are supplied with electric fans.

The design of the interior is broad and simple, having a large order carried round the body of the house. The cornice, panelled features, and walling are executed in a French composition stone—"stuc"—made and fixed by Parisian workmen. The texture is, of course, uniform, the joints are white and well marked, and the colour a warm sandstone resembling "Craigleith." Some excellently designed marble doorways relieve the general tone, but it may be said that colour, as usually applied to theatres, is absent and gives place to material.

"Behind the scenes," the interior presents the usual appearance of a stage. A new feature, however, is seen in the limelight gallery on each side wall to avoid confusion with operations in the "flies." The electric lighting arrangements, by Messrs. Higgins & Griffiths, are very interesting, and were put through various scenic changes for the benefit of the visitors. The drop scenes already referred to were designed by the architect and painted by Mr. T. K. Brown. Messrs. J. Allen & Sons are the general contractors. The President of the Association, Mr. E. Guy Dawber, made some very appreciative remarks upon the success of the visit, which was brought to a close by an animated expression of approval by the members.

AMERICAN STONE INDUSTRY.—It is officially notified that the figures collected by the Geological survey put the value of the stone quarried in the United States in 1903 at 73,384,200 dols., an increase of 3,553,649 dols. over 1902, in spite of troubles in the building trades. Pennsylvania surpassed all other States in the product of its quarries during 1903. The value of its stone amounted to 13,913,220 dols. New York is third, with a stone product valued at 5,742,833 dols., and Ohio is fourth, with a product worth 5,114,051 dols. The production of every other State was considerably less. The values of the output of the different kinds of stone in 1903 were as follows:—Granite 15,703,793 dols.; trap rock, 2,732,294 dols.; sandstone, 9,482,802 dols.; blue stone, 1,779,457 dols.; marble, 5,362,686 dols.; limestone for building, 26,642,551 dols.; limestone for flux, 5,423,732 dols.; slate, 6,256,885 dols.

Illustrations.

EAST WINDOW, ALL SAINTS' CHAPEL, ST. CHAD'S CHURCH, GATESHEAD-ON-TYNE.

THIS window is the first of a series intended to represent Christianity as exemplified in the lives of her saints; selecting representative heroes of England, such as King Alfred, the Ven. Bede, Sir Philip Sidney, and Grace Darling.

This, the east window, is meant to bring into prominence the human aspect of the life of Christ. In the centre light he is represented as the Good Shepherd, and beneath as washing the disciples' feet. In the right hand light is St. John the Evangelist (the beloved disciple), who is represented in the predella, supporting the steps of the Virgin (who has been committed to his care) as they follow the bier on which the body of our Lord is borne to the sepulchre. The left hand light represents the Virgin with the infant Christ, and beneath the finding of Christ in the Temple.

The first aim of a stained glass window is to give a fine effect of colour. In early Gothic glass drawing is of very minor importance. The beauty is due to fine colour composition and to the gem-like quality of the glass. This quality owes much to the very imperfections of the material, its uneven thickness and variations of colour, and to the heavy leading due to the primitive method of cutting. The limitations of a craft are often its safeguards, and it is of the greatest importance that the designer should understand those limitations; should be, in fact, a craftsman as well as an artist. To ape archaic drawing whilst using flat, inferior modern glass and thin leads is to combine the defects of two periods. To be content with a flat rather than a pictorial effect, and to seek simplicity of line and dignity of pose is the lesson to be learnt from our early masters.

WESTBURY MANOR, BUCKS.

THIS drawing shows the alterations and additions to the old manor house, which comprise new library, drawing-room, and boudoir, and entirely new kitchen offices. The front of the old house has been remodelled, and the whole of the work done in local stone with Bath stone dressings and Leicestershire green slates. Messrs. J. Parnell & Sons, of Rugby, were the contractors, and the architect is Mr. Clyde Young, of London.

FRONTS IN TOTTENHAM COURT-ROAD AND OXFORD-STREET.

The front forming Nos. 216-219, Tottenham Court-road was built for Messrs. Bartholomew & Fletcher as show-rooms for their antique and modern furniture. Messrs. Jas. Smith & Sons, Ltd., of Norwood, were the contractors, the stone carving and modelling over the entrance being executed by Mr. W. Aumonier.

Nos. 455-459, Oxford-street, and 22, North Audley-street, were built for Messrs. Champion & Wilton, with spacious workshops at the back; the upper part of the building is divided into flats.

Messrs. Holloway Brothers, of Belvedere-road, Westminster Bridge, were the contractors, and Messrs. Walter Smith & Wheaton did the stone carving.

Messrs. Read and Macdonald are the architects. In this case we did not ask the architects for plans, regarding these designs mainly as additions to the visible street architecture of London, which is governed rather by lines of frontage than by special considerations of plan.

HOUSE, HEADINGLEY, LEEDS.

THIS is one of the houses carried out by the late Mr. F. W. Beaford, whose early death we had to chronicle in our last issue. It is one of the buildings mentioned in our obituary article.

MISSION HALL, SEATON HIRST.—A new mission hall is being erected in Third-avenue in connexion with St. John's Church, Seaton Hirst. When completed the building will accommodate 300 persons, and will be seated throughout with chairs. The dimensions will be 59 ft. by 27 ft., with a vestry at the west end, 27 ft. by 12 ft. Plans have also been prepared by Messrs. Hicks & Charlewood, of Newcastle, for the enlargement of the church. The plans provide for a west extension of 32 ft., and a south aisle, 80 ft. long and 19 ft. broad. The accommodation will be doubled.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday, in the County Hall, Spring-gardens, S.W., Mr. J. Williams Benn, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Hackney Borough Council 2,500*l.* for the construction of an underground convenience at Lower Clapton-road; Lewisham Borough Council, 5,065*l.* for erection of buildings at Home-park depot; and Wandsworth Borough Council, 17,700*l.* for street improvements.

Physical Deterioration.—The General Purposes Committee presented a report upon the recommendations of the Inter-Departmental Committee on Physical Deterioration. The report pointed out that the opinions gathered from the great majority of the witnesses examined did not support the belief that there was any general progressive deterioration in the nation, physical deterioration being, as one witness put it, "practically confined to the poorest and lowest strata of the population, whose children are improperly and insufficiently fed and inadequately housed, and where parents are improvident, idle, and intemperate." The committee stated that if this view was correct they felt that remedial measures were comparatively easy of application, as "the task of dealing with a concentrated rather than a scattered evil manifestly presents fewer difficulties." The General Purposes Committee now recommended that the most important recommendations of the Inter-Departmental Committee should be referred for consideration to the various committees of the Council most closely identified with the matters dealt with.

The recommendation was unanimously adopted.

Enlargement of School, Hackney.—On the recommendation of the Education Committee, it was agreed that the estimate, 3,690*l.*, submitted by the Finance Committee be approved; that expenditure not exceeding 3,942*l.* be sanctioned in respect of the enlargement of the Windsor-road school (Hackney, S.) by 180 places, and of the other works proposed to be carried out at the same time; that the work be executed by the Council without the intervention of a contractor, and that the drawings, quantities, specification, and estimate of 3,607*l.* be referred to the Works Committee for that purpose.

Islington and Hornsey Drainage.—On the recommendation of the Main Drainage Committee, it was agreed, after a long discussion, that the estimate of 27,500*l.*, submitted by the Finance Committee, be approved; that an agreement, in the terms of the draft presented to the Main Drainage Committee on October 27, 1904, be entered into with the Islington Metropolitan Borough Council and the Hornsey Corporation relative to the drainage of the Stroud-green area; and that the seal of the Council be affixed to the agreement. That so soon as the agreement between the Council, the Islington Metropolitan Borough Council, and the Hornsey Corporation shall have been completed, an advertisement be issued inviting tenders for the work of constructing a new sewer along Stroud-green-road, Tollington-park-road, and Grove-road into the Holloway storm relief sewer. That the operation of the standing order relating to the time for the submission to the Council of schemes involving applications to Parliament be suspended in order that the following recommendation may be considered. That Parliamentary authority be sought, in the session of 1905, to give effect to the provisions of the agreement with the Islington Metropolitan Borough Council and the Hornsey Corporation relative to the drainage of the Stroud-green area, and to give effect to the award, when made, upon matters referred to arbitration under the agreement.

Shelters at New Theatre Building, Charlotte-street.—In an adjourned report of the Building Act Committee, it was recommended that the Council, in the exercise of its powers under sections 22 and 73 of the London Building Act, 1984, do consent to the erection of iron and glass shelters to a theatre building abutting upon the east side of Charlotte-street, south side of Tottenham-street, and north side of Pitt-street, St. Pancras, submitted in connexion with the application of Mr. F. T. Verity on behalf of Mr. E. D. Maddick; that the whole of the work be executed to the satisfaction of the District Surveyor; that no advertisement, sign, lettering, or device, other than the name of the premises, be placed over or upon or affixed to such shelters.

The recommendation was agreed to.

Piccadilly Widening.—The Improvements Committee recommended:—"That the estimate of 72,500*l.* submitted by the Finance Committee be approved; and that the Improvements Committee be authorised to take all necessary steps to secure the widening of Piccadilly to a *minimum* width of 80 ft. between St. James's-street and Duke-street, as shown upon the plan presented to the committee on September 30, 1903, subject to the Council of the city of Westminster agreeing to contribute one-seventh of the actual net cost of the improvement, provided however that if the actual net cost exceeds 72,500*l.*, the contribution from the City Council shall be limited to 10,493*l.* (which bears the same relation to the total cost as the amount originally offered by the City Council bore towards the original estimate), and also provided that the contribution from the City Council shall be paid in proportionate instalments as each section of the improvement is completed."

Captain Hemphill moved as an amendment that the improvement should only be carried out if the Westminster City Council consented to contribute 18,125*l.*, one-fourth of the cost.

Mr. Dickinson seconded the amendment, and after discussion it was rejected by thirty-nine votes to thirty-four.

The recommendation of the Committee was adopted.

Reconstruction of Warwick-road Bridge.—The Bridges Committee recommended, and it was agreed, that the Council's statutory consent be given to the reconstruction by the Paddington Metropolitan Borough Council of the bridge carrying Warwick-road over the Regent's-canal in the manner shown upon the plans presented to the Bridges Committee on May 11, 1904; subject to these being so amended so as to permit of the construction of a conduit tramway over the bridge, and to such necessary minor alterations being made in the plans as may be agreed upon between the chief engineer of the Council and the surveyor of the borough council; and that a contribution be made by the Council, on the usual conditions, of one-third of the net cost of the improvement, provided however that if the total net cost exceeds 8,500*l.*, such contribution shall be limited to 2,834*l.*

Erection of Buildings in Euston-road.—The Building Act Committee brought up a long report in regard to an application of Mr. W. C. Jones on behalf of the Worshipful Company of Skinners for consent to the erection of buildings on the site of Nos. 45-113, Euston-road, to an advanced line. In the course of their report they stated:—"Having regard to all the circumstances connected with the Marylebone, Euston and Pentonville roads, to the importance of preserving existing open spaces, and to the immense value to London of a magnificent boulevard 3 miles in length and in most parts nearly 140 ft. in width, such as we hope it may in time be possible to form out of these roads, at a comparatively small cost, if the Council strenuously resists every endeavour to build over the existing forecourts, we are of opinion that it would be very detrimental to the public interest to allow any advance of the building line in the case of the premises Nos. 45-113, Euston-road. In view of the importance of the question, which affects not only the boroughs in which the Marylebone, Euston and Pentonville roads are situated, but the whole of London, and in order to enable the Council to estimate the probable effect of granting the present application, we have given instructions for a cartoon plan of the roads as at present existing to be hung in the Council chamber. We recommend that the resolution of May 3, 1904, refusing the application of Mr. W. C. Jones, on behalf of the Worshipful Company of Skinners, for consent to the erection of buildings on the site of Nos. 45-113 (odd numbers), inclusive, Euston-road, to an advanced line, be adhered to."

Mr. Goldsmith moved, and Dr. Beaton seconded, that the matter be referred back to the Committee, but the motion was defeated, and the Committee's recommendation was carried.

Housing.—The Housing of the Working Classes Committee recommended that the estimate of 4,000*l.*, submitted by the Finance Committee in respect of a proportion of the cost of carrying into effect the London (Norfolk-square, Islington) Improvement Scheme, 1892, be approved; that the payment of 3,048*l.* 2*s.* 3d. to the Council of the Metropolitan Borough of Islington as part of the agreed contribution towards the cost of the scheme be authorised; and that it be referred to the Finance Committee to make the payment.

The recommendation was agreed to.

Wenlake-buildings, Roby-street, St. Luke—Sub-letting of Contract.—The same Committee reported as follows:—"The Haslemere Builders, Limited, have asked for sanction to the sub-letting of the gas-fitting work required under their contract for the erection of Wenlake-buildings in Roby-street, St. Luke. We see no objection to the application being granted, subject to the usual conditions, and we accordingly recommend that the Haslemere Builders, Limited, be allowed to sub-let to Messrs. H. Davis & Co. the gas-fitting work under their contract for the erection of Wenlake-buildings in Roby-street, St. Luke, subject to the principal contractors being responsible to the Council for the work being done under the same conditions as if done by themselves."

Mr. Dew moved that the recommendation be referred back on the ground that the firm in question had already sub-let a good deal of the work for the erection of Wenlake-buildings.

The motion, however, was lost.

Mare-street—Paving, etc., Works.—The Improvements Committee recommended, and it was agreed, (*a*) That the working drawings, bills of quantities, specification and estimate of cost (24,200*l.*) of the paving and other works in connexion with the widening of Mare-street between Darnley-road and the Triangle, authorised by the London County Council (Improvements) Act, 1900, be approved, and be referred to the Works Committee with a view to the work being carried out without the intervention of a contractor; (*b*) that the employment of a clerk of works in connexion with the works in Mare-street be authorised at a cost not exceeding 250*l.*

Chiswick Drainage.—The Main Drainage Committee recommended, and it was agreed, "That an agreement, on the basis indicated in the foregoing report, be entered into with the Chiswick Urban District Council relative to the reception into the London main drainage system of sewage from certain premises in the urban district; that the solicitor do complete the matter; and that the seal of the Council be affixed to the agreement."

Indication of Houses of Historical Interest.—The Local Government Committee brought up the following report, the recommendation being agreed to:—

"We consider that the residences of Dante Gabriel Rossetti, at 38, Charlotte-street, Portland-place; of Charles Darwin, at 110, Gower-street; of W. M. Thackeray, at 16, Young-street, Kensington; and of Edward Jenner, at No. 14, Hertford-street, W., should be commemorated. We have verified the facts connected with the houses referred to, and have also obtained the necessary consents to the fixing of memorial tablets. We recommend—That the undermentioned houses of historical interest be commemorated by means of memorial tablets. (*a*) No. 38, Charlotte-street, Portland-place (Dante Gabriel Rossetti); (*b*) No. 110, Gower-street (Charles Darwin); (*c*) No. 16, Young-street, Kensington (W. M. Thackeray); and (*d*) No. 14, Hertford-street, W. (Edward Jenner)."

London Building Acts (Amendment) Bill, 1905.—The Parliamentary Committee reported as follows:—"We have prepared, in accordance with the instructions of the Council on November 15, 1904, and on the general lines indicated in the report of the Building Act Committee, presented on November 8, 1904, the London Building Acts (Amendment) Bill, which seeks to amend the Acts relating to buildings in London. With regard to the proposed reconstitution of the Tribunal of Appeal, we are unanimously of opinion that it is undesirable to give effect to the Council's resolution. . . . After consultation with the chief officers concerned, we have satisfied ourselves that the Council's object will be best met if provision is made in the Bill requiring the Tribunal to state their reasons when giving a decision, as the Council is required to do when refusing to sanction the adaptation of ways for streets, and this has accordingly been done. We have given directions for copies of the Bill to be circulated to all the members of the Council, and we also propose to submit the Bill as soon as possible to the various professional bodies and local authorities for their consideration and views."

The Committee recommended:—

"(*a*) That so much of the resolution of the Council on November 15, 1904 (p. 2,663), as provides for the reconstitution of the Tribunal of Appeal constituted unde

the London Building Act, 1894, be rescinded; and that in lieu thereof provision be made in the Bill to amend the London Building Acts whereby the existing Tribunal of Appeal shall be required to state their reasons when giving a decision.

"(*b*) That the London Building Acts (Amendment) Bill be approved; that the seal of the Council be affixed to a petition for leave to bring in the Bill; and that the Bill and petition be deposited pursuant to the standing orders of Parliament and with such necessary alterations (if any) in the Bill as the Parliamentary Committee may consider desirable."

The Building Act Committee brought up the following special report on the same subject:—

"Our attention has been drawn to the report with regard to this Bill which the Parliamentary Committee will submit to the Council on Tuesday, December 13, 1904. The Council on November 15, 1904, resolved that provision should be made in the Bill—'For increasing the number of members of the Tribunal of Appeal from three to five, for one member to be appointed by the Council, but not to be a member of the Council, and for the fifth to be a barrister of not less than ten years' standing, to be chosen by the other four, and to act as Chairman of the Tribunal; also that no architect or surveyor practising in London shall be eligible for membership of the Tribunal, and that the powers of the Tribunal shall be restricted to the limitations of the section under which the appeal is made.' The Parliamentary Committee now propose that instead of the necessary provisions being inserted in the Bill to give effect to the resolution of the Council of November 15, 1904, with regard to the Tribunal of Appeal, a provision should be inserted requiring the Tribunal to state their reasons when giving a decision. The limited time at our disposal does not admit of our putting the matter fully before the Council, but in view of the importance of the question we think it necessary to point out the principal reasons why, in our opinion, the proposal of the Parliamentary Committee should not be adopted. There are some twenty-two matters which, under the London Building Act, 1894, may form the subject of appeal to the Tribunal, but of these the most important are the formation of streets, the general line of buildings in any street, part of a street, place or row of houses, and space at rear of buildings. The decision of the Tribunal on an appeal from the certificate of the superintending architect with regard to the general line of buildings may have a very wide reaching effect and result in a very serious loss to the public of light and air space. Dealing as the Tribunal does with matters of great consequence to the well-being of the general public, it appears to us a matter of the highest importance that its constitution should be such as to inspire the greatest confidence in the impartiality of its decisions. As the Council is aware, section 175 of the London Building Act, 1894, prescribes that the Tribunal shall be constituted as follows—one member appointed by the Secretary of State for the Home Department, one by the Council of the Royal Institute of British Architects, and one by the Surveyors' Institution. It appears to us that a tribunal consisting of three members, two of whom are appointed by the professional bodies whose interests are closely connected with those of the owners of land and property, cannot be regarded as the best form of Tribunal, and the objections to it are intensified when as is now the case the persons appointed by the professional bodies are architects and surveyors in active practice, whose own work may become the subject of an appeal to the Tribunal, and be adjudicated upon by them in their capacity as members of the Tribunal. We considered several alternative proposals for providing an appeal from the Council's decisions, amongst others, that all appeals should go to a county court judge or judge of the High Court sitting with two professional assessors or advisers or should be settled by arbitration. We came to the conclusion, however, that the most practicable course was to endeavour to remove the chief objections to the present form of constitution of the Tribunal. We quite admit that it may be possible to suggest a better solution of the difficulty, and if the Council adheres to its decision of November 15, 1904, it will, if the Bill goes to a Committee of the House, ensure a full discussion of the subject, and some better arrangement may be the result. We fail to see that the proposal of the Parliamentary Committee will have any useful effect, and as it does not involve any amendment of section 175 of the London Building Act, 1894, its adoption by the Council would, we understand, make it almost impossible to raise the question of the amendment of the constitution of the Tribunal in a Committee of the House. As we are convinced that an absolutely impartial Tribunal of Appeal is essential in the interest of all parties concerned, we have unanimously asked our Chairman to move an amendment to the recommendation of the Parliamentary Committee, and with a view of enabling the Council to judge of the importance of the question, we have had prepared a cartoon showing a portion of the Fulham-road and having marked thereon the general line of buildings as recently defined by the superintending architect and as afterwards defined by the Tribunal of Appeal."

Captain Hemphill, Chairman of the Building Act Committee, said he was disappointed in the attitude of the Parliamentary Committee. The Building Act Committee had had an analysis made of every case which had been before the Tribunal of Appeal, and they had very much fuller information on the subject than the Parliamentary Committee, and in every case dealing with lines of frontage, where an appeal had been made to the Tribunal the line of approach had been advanced. The sole motive which seemed to have guided the Tribunal was to benefit the owners of property. The Committee did not think it a proper thing that men who had to decided questions of lines of frontage while sitting as the Tribunal should be men who were interested in such questions professionally while not sitting on the Tribunal, and for that reason the Committee thought that members of the Tribunal should not be composed of gentlemen who were practising in London, and who were more or less interested in such work. He, therefore, opposed recommendation (*a*).

Dr. Napier, Chairman of the Parliamentary Committee, said that the action of his Committee was in order to lighten the opposition to the Bill. The Bill, which had not been submitted to the professional or local authorities of London, would be bitterly opposed, and it was no good putting in needlessly aggressive clauses. It would be possible to bring in a small Bill next year dealing with this point if thought desirable.

The question was then put, recommendation (*a*) being defeated, and (*b*) being agreed to.

London Squares.—The Parliamentary Committee recommended that the London Squares and Enclosures (Preservation) Bill, 1905, be approved. The measure seeks to secure that the garden squares and enclosures in London shall be permanently preserved as such, and that such squares and enclosures when so preserved shall be free from any future legislation relating to the taxation of ground or site values. The Bill, while prohibiting the erection of buildings on the scheduled land and exempting the lands from assessment and rating on the basis of site values, also includes provisions (*a*) to enable the Council to make agreements with the owners of any of the scheduled lands with respect to the maintenance thereof, the erection of buildings thereon, and generally as to the preservation of such lands in their present state; (*b*) to empower the owners to require the Council to take over and maintain for the public squares and enclosures in cases where the owners desire to be relieved of the cost of maintenance; and (*c*) to enable owners in the rearrangement of their estates to utilise a portion of their garden squares or enclosures, should they desire to do so, on condition that an equivalent area of open space to the satisfaction of the Council is provided. These two latter provisions have been inserted at the suggestion of the Chancellor of the Exchequer and the Commissioners of Woods, who, on behalf of the Crown, have expressed their willingness that Bessborough-gardens, Clarence-gardens, and Munster-square should be placed in the schedule to the Bill. The Committee further stated that they proposed to send a copy of the Bill, together with the schedule containing all the garden squares and enclosures in London, to each of the owners whose squares or enclosures were comprised therein, with an intimation that, if after the introduction of the Bill and before the committee stage in the first House, they expressed to the Council their wish that their squares and enclosures should be withdrawn from the compulsory provisions of the Bill, the Council would, with regret, comply with such request. They were strongly of opinion that by adopting a conciliatory attitude they were most likely to gain the sympathy of the landowners concerned, and they trusted that, as the result of further negotiations, the Bill might result in securing the permanent preservation of many London squares and enclosures.

Lord Ludlow said that he had from the beginning taken a keen interest in this movement and had either personally or by letter approached the great ground landlords of London, with the result that a large number of them had expressed their sympathy with the Bill, and the owners of seventeen squares had consented to have their property scheduled to the Bill. There was every reason to believe that a great many more would come in. In the Edwardes-square (Preservation) Bill of last Session Mr. Dickinson wanted to make the measure compulsory; it was in fact a confiscatory Bill, and anything in that way he (Lord Ludlow) would oppose as strongly as he was supporting the present Bill.

Mr. Dickinson said that no one recognised more than he did the well-intentioned services of Lord Ludlow in this matter, but he contended that this was clearly a case in which some measure of compulsion was necessary. The present state of affairs was an abuse of the power of the landlord interest against the public interest. If they did not have a compulsory Bill they might save certain of the squares owned by high-spirited and municipally patriotic landlords, but they would not save the very squares they were most anxious to preserve, those which were on the point of being sold for building purposes. At any rate he thought that they might leave the door open for a compulsory measure, and he accordingly moved as an amendment to add to the recommendation the words "provided that the Council do report further to the Council before accepting the squares or enclosures of any particular ground landlords." In that way they would discover in time who were willing to come in and whether a compulsory measure was necessary.

Mr. Jackson seconded the amendemnt.

Mr. Burns, M.P., supported the Bill. He pointed out that theoretically he was in favour of the nationalisation of the land, but this was a matter of expediency, and he was anxious to save the squares. It would be nothing short of a calamity if they lost the 412 London squares through a mistaken policy.

The amendment was rejected on a show of hands.

The Bill was then approved.

The Council adjourned soon after eight o'clock.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Lewisham.—Six buildings on a site abutting upon the west side of Perry-hill and south side of Vancouver-road, Catford (Mr. S. C. Hart for Messrs. E. Clarke & H. Kerwen).—Consent.

Lewisham.—A building on a site abutting upon the east side of High-street, and north side of Limes-grove, Lewisham (Messrs. Owen & Ward for Mr. W. Stephens).—Consent.

Hackney.—An iron and glass porch at No 12, Lower Clapton-road, Hackney (Mr. F. H. Coles for Dr. F. P. Bremner).—Consent.

Lambeth, North.—A boiler-house at St. Thomas's Hospital, Lambeth Palace-road, Lambeth (Mr. P. Currey).—Consent.

Lambeth, North.—Removal of existing covered way at the entrance to block No. 1 of St. Thomas's Hospital, fronting upon Westminster Bridge-road, Lambeth, from one position to another.—Consent.

Fulham.—A porch and balcony at No. 77, Ellerby-street, Fulham (Mr. J. Coleman).—Consent.

Fulham.—Projecting arches between the bay windows of two blocks of flats on the west side of Vera-road, Fulham (Mr. H. G. Brace for Mr. A. L. Horlock).—Consent.

Hampstead.—A deviation from the plans approved for the erection of additions to All Souls' Church, Loudoun-road, Hampstead (Messrs. Nicholson & Corlette).—Consent.

Hampstead.—Three blocks of working-class dwellings upon a site abutting upon the east side of Upper Park-road and north side of Lower Cross-road, Hampstead (Mr. O. E. Winter for the Council of the Metropolitan Borough of Hampstead).—Consent.

Hampstead.—A conservatory at No. 48, Frognal, Hampstead, to abut upon Arkwright-road (Mr. F. S. Hammond for Mr. R. Hart).—Consent.

Hampstead.—Three houses upon the west side of Rosecroft-avenue, abutting also upon the north side of Hollycroft-avenue (Mr. W. J. King).—Consent.

Marylebone, East.—A porch at No. 38, Finchley-road, St. Marylebone (Messrs. Anscombe & Ringland for Mrs. Lupton).—Consent.

Paddington, South.—An oriel window at the ground-floor level of No. 62, Oxford-terrace, Paddington (Messrs. Carr & Parr).—Consent.

St. George's, Hanover-square.—A verandah at the first-floor level of No. 10, Berkeley-square, St. George's, Hanover-square (Messrs. Woodrow & Helsdon for Messrs. J. Andrews & Sons).—Consent.

St. George-in-the-East.—Projecting lamps at St. John's and King Henry's wharves, High-street and Dundee-street, Wapping (Messrs. R. G. Hall & Co.).—Consent.

Wandsworth.—Four dwelling-houses on the north-western side of Church-lane, Tooting, westward of Lucien-road (Messrs. Nash & Lillywhite).—Consent.

Dulwich.—Buildings on the south side of Barry-road, Dulwich, abutting also upon Lordship-lane (Messrs. Harrington & Ley for Mr. J. Redapple).—Refused.

Lewisham.—A block of residential flats at No. 155, High-street, Lewisham, of bay-windows and balconies overhanging a roadway leading out of the southern side of High-street (Mr. C. A. Geen).—Refused.

Marylebone, East.—Buildings upon a site abutting upon the northern side of Albert-road, eastern side of Avenue-road, and southern side of St. Edmund's-terrace, St. Marylebone (Mr. A. F. Faulkner for Mr. W. Willett).—Refused.

Stepney.†—A projecting hood over the entrance to "Court House," Holloway-street, Commercial-road, Stepney (Messrs. Joseph & Smithem for the Council of the United Synagogue).—Refused.

Wandsworth.†—A house on the north side of Hazlewell-road, Putney, to abut upon Campion-street (Mr. J. C. Radford for Mr. A. E. Pierce).—Refused.

Width of Way, Lines of Frontage, and Construction.

City.—A deviation from the plans approved for the erection of an open iron and concrete gangway across Water-street, City, so far as relates to an alteration in the position of such gangway (Messrs. Cheston & Perkin). Consent.

Width of Way and Lines of Frontage.

Lewisham.—A building upon a site abutting upon the northern side of Ewart-road and the western side of Garthorne-road, Forest Hill, with a forecourt fence at less than the prescribed distance (Mr. G. Dunsmore for Messrs. Dunsmore Brothers).—Consent.

Mile End.—The retention of a two-story addition erected at the rear of No. 32, Tredegar-square, abutting upon College-street, Mile End, with external walls at less than the prescribed distance from the centre of the roadway of College-street (Mr. J. M. Knight for the Guardians of the Hamlet of Mile End Old Town).—Consent.

Lewisham.—One-story buildings on the western side of Perry-vale, Lewisham, adjoining Forest Hill Railway Station (Messrs. F. Chambers & Son).—Refused.

Lines of Frontage and Construction.

Marylebone, West.—A one-story wooden office building on part of the forecourt of No. 498, Edgware-road, St. Marylebone (Messrs. D. C. Martin & Son).—Refused.

Conversion of Building.

Strand.—The adaptation of St. Clement Dane's Schools, Stanhope-street and Kingsway, for the purposes of a common lodging-house (Mr. O. Archer for the Salvation Army).—Consent.

The recommendations marked † are contrary to the views of the local authority.

ARCHITECTURAL SOCIETIES.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—At a meeting held on the 13th inst., Mr. Chas. Cole in the chair, the hon. secretary opened a discussion on "The ownership of Drawings as Affected by Recent Cases." He reviewed these decisions, and referred to the clearly put article in the *Builder* of November 26, also quoting the report of Ebdy *v.* McGowan, which really only dealt with one phase of the question—viz. : (*a*) that for plans of works partly carried out by the architect but finished without him, and which may in this case have necessitated the handing over of the plans; but such a ruling is quite on another footing when applied to (*b*) plans for works not carried out; (*c*) plans for works carried out by the architect; (*d*) plans for works carried out by the client without the architect's supervision. The attitude of the Surveyors' Institution and that of the R.I.B.A. having been contrasted, as well as a compliment paid to the *Builder* for the stand it is taking, an interesting discussion followed, leading up to a resolution that, as it is the custom of architects in this locality to retain the drawings, the attention of the R.I.B.A. be drawn to this important matter, and that the Board of Professional Defence be asked to take steps to obtain another pronouncement on this question.

LIVERPOOL ARCHITECTURAL SOCIETY.—A meeting of this Society was held in the Law Library, Castle-street, on the 5th inst., Mr. P. Thicknesse in the chair. Messrs. Sydney Maddock, of Frodsham, and D. H. Richards, of Birkenhead, were elected associates. Afterwards, Mr. Maurice B. Adams, F.R.I.B.A., read a paper on "Modern Libraries." He pointed out that the value of public libraries as an adjunct to education was not yet realised in this country as was the case in America. Libraries were crippled by the limit of the penny rate, fixed when the movement was an experiment. This limit led to inefficiency and waste. On the whole, he advocated State aid for libraries as part of the education grant. Every class should be catered for. It would increase the usefulness of libraries if the Cardiff system was more generally adopted. In Cardiff they had juvenile reading-rooms and school lending libraries, and lectures and classes on the use and value of books, as well as special lectures for adults and artisans. Mr. Adams insisted that architecturally libraries should be among the best features of a town.

MANCHESTER SOCIETY OF ARCHITECTS.—At a meeting of the Manchester Society of Architects, held in the Chartered Accountants' Hall on the 8th inst., Mr. E. T. Hall, of London, gave a lecture on "Hospital Design and Construction" Starting with the canon that architectural treatment must always be subordinated to the fundamental objects of a hospital, Mr. Hall spoke of the importance of providing the maximum of sunlight and the best possible system of ventilation. The hospitals of the XVIIIth century were, he said, often a great danger to the patients. For instance, the Hôtel Dieu in Paris contained from 700 to 1,000 patients in one ward, and the beds were made to accommodate four patients each, and often had to hold six. Some 5,000 patients were housed on a site of three acres, which allowed only 30 ft. per patient. It was not surprising to hear that the mortality in the Hôtel Dieu of the XVIIIth century was as high as 22 per cent. Mr. Hall traced the gradual evolution of hospital construction, and pointed out that our modern hospitals have an area thirty times as large, and our modern fever hospitals an area from sixty to a hundred times as large, per patient as that provided in the old Hôtel Dieu.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The ordinary monthly meeting of this Society was held on the 8th inst. in the lecture hall of the Literary and Philosophical Society, Leopold-street, when a lecture was given by Mr. E. M. Gibbs on "Architecture in Eastern Europe." The lecturer said it was not a critical essay he had to deliver, but only a number of views of buildings taken or purchased by him on an eighteen days' cruise in the Mediterranean, with a few odd days on shore, visiting Taormina, Constantinople, Smyrna, Ephesus, Athens, Corinth, Mycenæ, and Tiryns. As the antiquity of the architecture he had to illustrate was almost in reverse order to that in which the cities were visited, he commenced with Tiryns and concluded with Constantinople. Tiryns was shown by limelight to be a shapeless ruin of unhewn stones without mortar. Mycenæ, the lecturer said, was of nearly equal early date, and Cyclopean. The huge stone beam to the Lion Gate was relieved of weight by the corbelling over it, and the triangular space filled with sculpture. The tomb of Agamemnon was shown, as also was a portion of the surrounding circular wall, within which are five tombs, the gold and other ornaments of which, the lecturer said, filled many cases in the Athens Museum. The tomb of Queen Klytemnestra, which was shaped inside like a beehive, had all the roof built in horizontal courses of stone, and showed that the radiating joints of domes had not then been invented. It had partly fallen in consequence. The Corinth of Apostolic times was now a mere hamlet, and contained nothing much of interest except a few columns of the Temple and a bath. The modern canal across the isthmus was a great engineering work 3½ miles long, with water 100 ft. wide and 26 ft. deep. Athens was so pre-eminently beautiful and interesting that the lecturer could not refrain from devoting a large number of slides to it, but no slides could convey any idea of the beauty of the combination of blue sky, fine hills, and white marble buildings stained with age, and of the most perfect architecture. Some snapshots of architectural fragments interesting to students were also shown. Mr. Gibbs said the Stadium had recently been restored at the cost of a Greek merchant; it had a course about 100 ft. longer than Bramall-lane, and had seats in white marble on three sides raised in sixty tiers, so as to hold 50,000 people. It was formed out of a natural valley. Views of modern buildings in Athens showed how excellently the architects worked in the ancient style. The views of Ephesus were limited to a few snapshots taken during a visit which was shamefully hurried by the guides, considering its great historical interest and its immense wealth of Grecian-Roman remains. One view showed a street nearly a mile long, all of white marble, with the remains of columns down each side, and out of this street opened many public buildings, and it led up to the great theatre, which seated 24,500. The remains of the Temple of Diana are now in a great hollow and difficult of access because of water; the best of the work is to be seen in the British Museum. The excavations of the city are being rapidly proceeded with, and any traveller to the east should visit Ephesus. The ruins show in what magnificence and beauty the old Greeks and Romans loved to dwell, and made the lecturer desire that the time should come when a rich nation like the English might in like way more fully appreciate noble architecture. Views were shown of Constantinople, and of its mosques, fountains, palaces, bazaars, and streets. The wealth and beauty of the marble and mosaic decoration of S. Sophia were equalled by its wonderful arched and domed construction, which has stood the test of earthquakes for 1367 years; it was over 900 years old when it came into possession of the Turks, and they have preserved it almost intact, with the exception of obliterating the figures of saints. It was also remarkable that the mosques built by the Turks in Constantinople so very many years afterwards were all adaptations of the general arrangement of S. Sophia. The museum contained some twenty-one sarcophagi discovered in 1887 in Sidon. Two of them were illustrated, the one called the Tomb of Alexander being evidently of that period of Greek art; it was of white marble, and was sculptured on all sides. The other tomb was called The Weepers, because of the figures all around it. The marble shows traces of vivid colouring. The bazaars dated from the time of Constantine, and were very interesting. The fountains were wholly Turkish work. On the motion of Mr. J. Smith, seconded by Mr. W. J. Hale, and supported by Messrs. A. Howe and Horace Wilson, a hearty vote of thanks was accorded Mr. Gibbs for his lecture, which was illustrated by lantern slides exhibited by Mr. J. Atkinson, of University College.—On the motion of Mr. E. M. Gibbs, seconded by Mr. J. Smith, and supported by the President (Mr. T. Winder), a resolution was unanimously carried expressing satisfaction, and congratulating the hon. secretary (Mr. W. C. Fenton) on his appointment as chairman of the School of Art managers.

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.—The Annual General Meeting of the Royal Institute of the Architects of Ireland was held on the 8th inst., at Lincoln-place, Mr. William M. Mitchell, President, in the chair. The President, in the course of his address, said that the Government had treated the profession in Ireland very unfairly by appointing an English architect to design the new College of Science, and the appointment was taken to mean that the Government did not consider any Irishman qualified for the post. They need not be surprised, therefore, if public bodies, as well as private individuals, acted similarly to the Government. Referring to the proposal of the Ulster Society to reduce the scale of fees for certain buildings, he greatly feared the tendency may be to lower the commission on all buildings whatsoever to the reduced scale. He said that the recent appointment of a Board of Architectural Education in order to promote a uniform system throughout the United Kingdom, would do much for their young achitects, and properly equip them for their profession. He stated that a Registration Bill for Architects would help to solve the system of education, and since their last meeting much progress had been made in that direction. The allied societies were deliberating on the subject of registration, and would shortly issue their report. The object was an excellent one, and would prevent unqualified persons from assuming the title of architect. In conclusion, the President stated they should become fully equipped by scientific study and training to adapt their methods to any problems which might confront them in the future.—The annual report was then read, in which regret was expressed that the building trade was still in a depressed condition owing to the difficulty in realising invested money. As to the proposed reduced scale of fees by the Ulster Society, the council expressed its disapproval of any change which would go to alter the standard commission. The memorial deprecating the employment of municipal officers to carry out important works in urban districts was supported by the council, which had asked the Dublin Corporation to receive a deputation on the subject. Dealing with the appointment of an English architect for the new College of Science, the report regrets and strongly deprecates the action of the Government, which professes to have the betterment of Ireland at heart. It also regrets the increasing tendency to bring over English and Scotch architects whenever occasion offers. Mr. A. E. Murray proposed, and Mr. G. C. Ashlin seconded, the report, which was unanimously adopted. The hon. treasurer's report was also adopted. The

following council was elected for the ensuing year :—Messrs. Sir Thomas Drew, G. C. Ashlin, C. J. M'Carthy, G. Sheridan, Frederick Batchelor C. A. Owen, W. Kaye Parry, A. E. Murray, and W. H. Hill. Messrs. J. Rawson Carroll and F. G. Hicks were elected as hon. auditors.—The annual dinner of the Institute was held in the evening at the Shelbourne Hotel. Mr. William Mitchell, P.I.A.I., presided. The loyal toasts having been honoured, the President proposed the toast of "The Royal Institute of Architects of Ireland." He said that the Institute had attained quite a respectable age, having been founded in 1859. The body, he was glad to say, was progressing with encouraging rapidity, and had now reached a position and a state of prosperity to which it had never previously attained. It comprehended in its membership pretty well all the qualified architects in Ireland. The toast "Our Guests" was next given by the President, and the Dean of St. Patrick's, in responding, referred to the work of the architects of Ireland. Those who had been in Dublin felt that they owed a great debt of praise to the members of the architectural profession for the treasures with which they had enriched the city. Dr. Smyly, President of the College of Physicians, also responded, and paid a high tribute to the work of the architects in connexion with the Dublin hospitals. Mr. Chance, President Royal College of Surgeons, Mr. Laurence Waldron, M.P., Mr. Cochrane, President Civil Engineers Institution of Ireland, Mr. James Beckett, President of the Master Builders' Association, and Mr. Webb, President Architectural Association, also responded.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—The Fiftieth Annual General Meeting of the Society of Engineers was held on Monday, the 12th inst., at the offices of the Society, 17, Victoria-street, Westminster, Mr. D. B. Butler, President, in the chair. The following gentlemen were duly elected by ballot as the Council and officers for 1905, viz. :—As President, Mr. Nicholas James West; as Vice-Presidents, Messrs. Maurice Wilson, Richard St. George Moore, and Joseph William Wilson; as Ordinary Members of Council, Messrs. Joseph Bernays, George Abraham Goodwin, George Green, William Henry Holttum, Edward John Silcock, Diogo Andrew Symons, John Aird, and Alexander Graham Drury; as Honorary Secretary and Treasurer, Mr. George Burt; as Honorary Auditor, Mr. Samuel Wood, F.C.A. The President announced that the following Premiums had been awarded by the Council for papers read during the past session, viz. :—The President's Gold Medal to Mr. William Edward Storey for his paper on "Condensing Machinery"; the Bessemer Premium of Books to Mr. R. G. Allanson-Winn for his paper on "Deep Sea Erosion and Foreshore Protection"; a Society's Premium of Books to Mr. A. S. E. Ackermann for his paper on "British and American Coal-cutting Machines"; and a Society's Premium of Books to Mr. Frank Latham for his paper on "Some Recent Works of Water Supply at Penzance."

THE INSTITUTION OF CIVIL ENGINEERS.—At the Ordinary Meeting on the 13th inst., Sir Guilford L. Molesworth, K.C.I.E., President, in the chair, a paper "On the Construction of a Concrete Railway-Viaduct," by Mr. A. Wood-Hill, Assoc.M.Inst.C.E., and Mr. E. D. Pain, Stud.Inst.C.E., was read. The following is an abstract of the paper :—The viaduct in question is situated at Cannington, on the Axminster and Lyme Regis Light Railway, which now connects Lyme Regis with the Yeovil and Exeter line of the London and South-Western Railway. It consists of ten elliptical arches of 50 ft. span, its total length being 600 ft., width over spandrels 16 ft., maximum height to rail-level 92 ft., and gradient 1 in 80. It affords an example of the recent application of concrete to viaduct construction, and to arches of somewhat large span. With the exception of the concrete blocks in the vertical faces of the arches, the work throughout is mass concrete. The geological strata are greensand and blue lias clay. The foundations, originally designed for a pressure of 3½ tons per square foot, were enlarged to give pressures ranging from 1½ ton to 3 tons per square foot. The concrete used consisted of crushed flints and Portland cement, the crushing yielding sufficient grit to make the addition of sand unnecessary except in special cases. The concrete was hand-mixed, and for transporting this and other materials a cable way of 1,000 ft. span was erected across the valley, the piers being built without scaffolding. The piers were carried up in rectangular lifts of diminishing size, instead of having a continuous batter, the lifts being 6 ft. deep. The concrete was deposited in wooden boxes of this depth, which were bolted up on the ground and hoisted into position. The mode of filling and striking the boxes, of which there are eleven, is described. The work in all the piers was advanced as far as possible at the same rate. Two rows of corbels were built in the top lift of the piers, to support the arch-centreing. This consisted of four-built ribs, the centre portion of which was tied by a framework, in the form of a Warren girder, supported in the middle by raking struts from the lower row of corbels. The ribs, including the lattice-work, were set in one piece, and four tie-bolts were placed in the span to assist the piers in taking the thrust. The faces of the arches were built in concrete blocks, of which two similar ones on opposite sides of the viaduct were set simultaneously by a rail attachment to the cableway; and by adjusting the chains attaching the blocks the latter were suspended at the angles required by their position in the arch. The blocks were keyed in advance of the mass concrete, in order that the adhesion of the latter to the toothing of the blocks might relieve the centres of some of the weight. Expansion joints were formed through the arches, spandrels and parapets, and are found effective in giving play for expansion and contraction, and any slight movement due to settlement. In turning the arches, the centreing, although apparently light, was found to be sufficiently rigid, and the setting was facilitated by the ribs being made in one piece. The settlement of the piers was for the most part fairly even, and, being adjusted as the work proceeded, did not affect the concrete; but the settlement of the west abutment and first pier was greater than elsewhere, and crushed the crown of the first arch. Two diaphragm-walls were built in brickwork in cement in the third span, to enable it to act as an abutment, and concrete needles were built in the embankment between the first and second piers; the crushed portion of the first arch was cut out and made good in brickwork, and the parapets over this arch were completed. Particulars are given of the cost of the viaduct, and a schedule is appended of the results of tests of sample blocks made from materials used in the concrete. The authors believe this is the first instance in which piers of a similar height have been built without scaffolding, and in which the centres of a 50-ft. arch have been designed for setting in one piece.

COMPETITIONS.

MEMORIAL TO SIR HECTOR MACDONALD.—On the 7th inst. the sub-committee for this memorial met to make a final selection from three designs which had been specially set apart for consideration, and selected that under the motto "Gael," by Mr. James S. Kay, Skirving-street, Shawlands. 150 drawings and 12 models had been sent in, from which 10 were first selected for special consideration, which were afterwards reduced to three for final selection. The other two were "Kudos," by Mr. E. C. H. Maidman (Edinburgh), and "Duty," by Messrs. Macdonald & Currie (Glasgow). The monument is to be erected on the "Green Hill," Dingwall. It will be in the form of a square mediæval keep or tower in the old Scottish Baronial style of architecture. It is proposed to use the ground floor as a small museum.

WESLEYAN METHODIST HALL, WESTMINSTER.—Sir Aston Webb has issued his report on this important competition. He states that there has been a very good response to the invitation, and does not consider that the trustees will have any necessity to exercise the right they reserved to invite final designs from architects other than the original competitors; instead of doing that he would advise them to invite the authors of nine of the designs to take part in the final competition, receiving a fee of 100 guineas each on satisfying the conditions. The authors of the nine designs recommended are:—Messrs. Crouch, Butler, & Savage (Birmingham); Messrs. Lanchester & Rickards; Messrs. Cheston & Perkin; Messrs. Waddington Son & Dunkley; Mr. James S. Gibson; Mr. James A. Swan (Birmingham); Mr. E. Vincent Harris; Mr. W. Flockhart; and Messrs. C. E. Mall and A. W. S. Cross: all of London except where otherwise stated.

BOOKS RECEIVED.

THE ARCHITECTS' LAW REPORTS, Vol. I. Compiled by Arthur Crow, F.R.I.B.A. (18, Great Prescot-street, London. 5s.)

LIVES OF THE ENGINEERS (Vermuyden—Myddelton — Perry — James Brindley). By Samuel Smiles. (John Murray.)

LOCKS AND BUILDERS' HARDWARE: (a handbook for Architects). By Henry R. Towne. (Chapman & Hall.)

TECHNOLOGICAL AND SCIENTIFIC DICTIONARY. Part VII. (Geo. Newnes. 1s.)

KNOTTING AND SPLICING ROPES AND CORDAGE. Edited by Paul N. Hasluck. (Cassell & Co. 1s.)

Correspondence.

THE GAS EXHIBITION.

SIR,—We notice in your issue of December 10, pages 601-2, you make reference to dynamos and arc lamps exhibited on the stand of Messrs. P. Simon & Co. We would like to point out that these dynamos and arc lamps are of our manufacture, and, in addition to supplying light for the stand and showing the possibilities of gas engines driving electrical plant, they were used for supplying power to various electric motors in use on many of the stands in the exhibition.

JOHNSON & PHILLIPS.

REINFORCED CONCRETE.

SIR,—Referring to the report in your issue of the 10th inst. of the discussion on "Reinforced Concrete" at the meeting of the R.I.B.A., I see that Mr. E. Robins claims to have taken out the first patent for armoured concrete in 1869. I am afraid that he is mistaken in supposing that his patent was the first. The late principal of this firm, who was the pioneer of *in situ* granite concrete paving, patented a reinforced concrete floor on October 27, 1854, using wire ropes suspended (as sketch)* for the tensional reinforcement.

It is interesting also to note that Mr. Wilkinson took out a patent two years later for hollow tubular plaster partitions, which, except that they were 4½ in. thick, were identical with the general construction of many of the present-day partitions.

For W. B. WILKINSON & Co., LTD.,
HUBERT TODD, London Manager.

* The diagram was sent too late for reproducing.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the Managers of the Metropolitan Asylums Board was held at the offices, Victoria Embankment, on Saturday last week.

Tooting Bec Asylum.—Among the correspondence received was a communication from the Local Government Board approving of the plans of the additional blocks to be erected at this asylum, at a cost estimated at 36,250*l.*

Belmont Asylum.—It was agreed to apply to the Local Government Board for their sanction to the Managers inviting tenders for wiring the Belmont Asylum for electric lighting purposes from six selected firms, and entering into a contract or contracts for the execution of the necessary works, without, in the first instance, advertising for sealed tenders.

Brook Hospital.—A scheme for providing additional means of access to the subways of this hospital, at a cost of some 375*l.*, was approved.

Offices of the Board.—It was reported that the total cost of completion of this building had been 57,290*l.* 6s. 2d.; slightly under the amount authorised by the Local Government Board.

Emergency Works.—It was agreed (the resolution applying to all institutions) that, except in cases of emergency (which shall be forthwith reported to the Clerk to the Board), no work which shall involve alteration or repairs to any drain, gas or water pipes, boilers, machinery, electric light installation, or lightning conductor, be authorised until the same shall have been reported on by the Engineer-in-chief, and any work so authorised shall be carried out under his supervision.

The Board of Unemployed.—The Clerk read a letter from the London Unemployed Fund asking whether the Board could assist them in any way in providing work for the unemployed. The Clerk had replied that the Board possessed no land whatever that would give work to the unemployed. The letter was referred to the Works Committee. A

supplemental report by the Works Committee, submitting for acceptance a tender by Messrs. W. H. Wheeler, of Blackfriars, for the execution of certain street works at Joyce Green Hospital, produced some discussion, and a motion to refer back was lost. Several Managers considered that the work should be taken in hand by direct labour, so that some of the unemployed of London might be benefited, but ultimately the Committee's recommendation was agreed to.

The Student's Column.

ASPHALT: ITS COMPOSITION AND PROPERTIES.—II.

NATURAL ASPHALT.

THE advocates of natural asphalt contend that the "mixed bitumens" are only to be found pure in the rock which they have permeated when in a state of vapour and under enormous pressure. Dr. H. Lotz, after examining the Ragusa deposits in Sicily, states quite recently that, like other bituminous deposits described by Messrs. Malo and Delano, they are the result of the sublimation or upward percolation through fissures of gaseous or liquid hydrocarbons. The bitumen in the Sicilian and Seyssel rocks is solid and tough, whilst that contained in Val de Travers is soily; and the tendency of the latter to creep under heat and rolling contact may be corrected by a judicious blending with the former or better, by the admixture of a percentage of old with new. The "total bitumen" may be separated from the pulverised rock by dissolving it in carbon bisulphide, and its percentage composition has been found analogous to that of indiarubber having the same hydrocarbons for its ingredients.

The molecules of natural asphalt are held together, not by cohesion—which, as it existed in the carbonate of lime, has been destroyed by the interpenetration of hydrocarbon vapour—but by agglutination, the test being to heat a small piece on an iron plate, when it will fall to pieces. The unimpregnated limestone found in an asphalt mine will not crumble on being heated.

To test its compressibility a small press with moulds or a tube with a plug and hammer may be used. Imperfect asphalts, after being subjected to a pressure of 6 tons per sq. in. in a closed space, will afterwards crumble under pressure of the fingers.

The percentage relation of "total bitumen" to limestone or sandstone, as the case may be, is shown for various types in Table I. from data furnished by Mr. Delano.

The writer has compiled the table in three sections, Nos. 1 to 7 being natural asphalts, having a limestone basis in all cases except No. 3, where sand predominates; Nos. 8 and 9 of Bastennes bitumen, and a mixture thereof with Seyssel rock (this bitumen is now exhausted); and Nos. 10 and 11 of gas-tar and the mixture thereof with ground fireclay and chalk to make an artificial asphalt. Of the first section, No. 6 represents Forens, with a low percentage of bitumen, No. 2 with high bitumen content but abnormal in iron and sulphur, whilst Nos. 1, 4, and 5 show what are still regarded as standard materials. Each section is comparable within itself, but it is not intended that the three sections of the table should be wholly comparable with each other, because the basis of computation is necessarily different, the bitumen or gas-tar being employed always in conjunction with some inorganic base. M. Durand Claye devised a quantitative method for enabling natural bitumens to be distinguished from the products of coal-tar by a comparison of the colour which the extracts assumed under various reagents, but as this technically belongs more to the domain of the chemist, and it has also been followed by a more complete differentiation, no further details need be given.

The following analysis recently made at the laboratory of the Imperial Institute shows a fuller statement as to the nature of the bituminous content, and at the same time gives information respecting a deposit of asphalt rock in the Island of Bahrein, Persian Gulf, within the area of the Geological Survey of India.

On heating in a crucible it yielded moisture 0·59; volatile matter 17·47; fixed carbon 5·30; and ash 76·63 per cent. The amount of bitumen contained in the asphalt rock was determined by extraction, first with acetone to remove the liquid bituminous matter (called "petrolene"), and subsequently with chloroform, which dissolves out the solid bitumen (called "asphaltene"); with the following results:—

	Per cent.
Matter soluble in acetone	10·47
Matter soluble in chloroform	7·20
Total bituminous matter	17·67

This comparatively high content was associated with a mixed base, in which siliceous constituents are predominant. The following is its percentage composition as shown by the ash, after driving off the carbonic acid from the limestone:—

Silica (SiO_2)	66·24
Alumina (Al_2O_3)	9·54
Ferric Oxide (Fe_2O_3)	2·31
Lime (CaO)	15·78
Magnesia (MgO)	2·22
Soda and potash	3·85

TABLE I.—COMPOSITION OF ASPHALT ROCKS, ETC.

Number of Specimen	1	2	3	4	5	6	7	8	9	10	11
Place and District of Origin.....	Val de Travers, Switzerland.	Lobsann, Alsace.	Maïstu, Spain.	Ragusa, Sicily.	Seyssel, Department of the Ain.	Forens, Department of the Ain.	Chieti, Abruzzi, Italy.	Refined bitumen from Bastennes (D. of Landes).	Seyssel melted with No. 8.	Gas Tar.	Imitation Asphalt.
Water and volatile matter at 100° centigrade	0·35	3·40	0·40	0·80	0·40	0·25	0·35	0·30	0·15	0·05	0·60
Bitumen, matters soluble in bisulphide of carbon..	8·70	11·90	8·80	8 85	9·10	2·25	7·75	69·35	14·05	65·70	20·65
Black matter, not soluble, but combustible	—	—	—	—	—	—	—	4·50	—	33·00	18·45
	9·05	15·30	9·20	9·65	9·50	2·50	8·10	74·15	14·20	98 75	39·70
Inorganic matter as below	90·95	84·70	90·80	90·35	90·50	97·50	91·90	25 85	85·80	1·25	60·30
Residue insoluble in acids	—	—	—	—	0·10	0·05	0·40	20·35	4·55	—	18 05
Alumina and peroxide of iron	0·30	1·25	4·35	0·90	0·05	0·15	0·25	2·85	0·85	—	2·65
Lime	49·50	38·90	5·70	49·00	50·50	54·35	50·45	0·70	45·00	1·25	22·20
Magnesia	0·10	0·15	3·85	0·45	0·05	0·10	0·70	0·10	0·05	—	a trace
Sand	0·60	3·05	57·40	0·60	—	—	—	—	—	—	—
Fine or combined silicate	—	—	11·35	—	—	—	—	—	—	—	—
Carbonic acid and waste	40·16	31·92	8·15	39·40	39·80	42·85	40·10	1·85	35·35	—	17·40
Sulphur	0·08	4·99	trace	—	—	—	—	—	—	—	—
Iron combined with sulphur	0·21	4·44	—	—	—	—	—	—	—	—	—

The above analyses were made under the direction of M. Durand Claye, Engineer-in-Chief and Director of the Laboratory of "Ecole des Ponts et Chaussées," Paris, who makes the following notes:—
Sample No. 1 is an almost pure limestone impregnated with bitumen. It is a true asphalt.
Sample No. 4 is an asphalt almost absolutely pure.
Sample No. 2 is an asphalt, but the iron pyrites, amounting to 9·43 (iron and sulphur), may give rise to oxidation and consequent disintegration after a time.
Sample No. 3 is a silicious rock, somewhat argillaceous and impregnated with bitumen.

To make it suitable for paving, 70 per cent. of powdered calcite or limestone should be added so as to have a finished product containing not more than 10 per cent. of bitumen, and consolidating by heat and pressure into a compact and impermeable roadway.

OBITUARY.

MR. RICHARD MAWSON.—The death of Mr. Richard Mawson, of the firm of Messrs. Mawson & Hudson, architects, of Bradford, takes our recollections back to the days of Gothic, when the firm of Lockwood & Mawson was prominent in competitions for town halls and other large buildings in the revived Gothic style. Mr. Mawson was the son of a printer in Leeds, and was taken into partnership with Mr. Lockwood at an early age, a circumstance which indicates that he was recognised as a young architect of special talent. The firm were, as is well known, the architects of the Bradford Town Hall, besides many other large and important buildings. Mr. Mawson was seventy at the time of his death.

GENERAL BUILDING NEWS.

BAPTIST CHURCH, BEVERLEY-ROAD, HULL.—The foundation-stone of this church was laid on the 7th inst. The church, which will accommodate over 1,000 persons, mostly on the ground floor, is designed in a late period of Gothic, a bold square tower being the feature at the corner of the site. The contract amount for the church, five vestries, large church parlour, cloakrooms, etc., is 5,500*l*. The architects are Messrs. George Baines & R. Palmer Baines, Clement's-inn, Strand, London, W.C.

BAPTIST CHURCH, SHIREHAMPTON, GLOUCESTERSHIRE.—Memorial-stones of a Baptist church at Shirehampton were laid on the 5th inst. The contractor's price for the building is 2,044*l*., and accommodation will be provided for a congregation of about 300. The chief entrance will be from Pembroke-road, the church being entered through a porch, on both sides of which will be a lobby. At the further end of the building will be vestry-rooms and other offices. The plans were designed by Mr. Benjamin Wakefield, of Bristol, and the work is being executed by Messrs. Biss & Sons, of Portishead. The church will be 50 ft. by 27 ft., and the height from floor to ridge 28 ft. The east and west walls will be panelled on the inside to the height of 4 ft. 6 ins., these panels being movable so that they may be pulled out to form sixteen classrooms. The roof will be an open timber one covered with red tiles, and the floor will be of pitch-pine wooden blocks.

BAPTIST MISSION CHURCH, BROADWATER.—The foundation-stone of this new building was laid on Wednesday, December 14. The portion at present in course of erection is the mission church, which will form eventually the schoolroom when the future church is built. The building is designed in a free treatment of late Gothic, and is faced in red brickwork. The contract is let to Messrs. F. Sandell & Sons, the amount being 463*l*. 15s., and the architects are Messrs. George Baines & R. Palmer Baines, London.

CHANCEL, BRIGHOUSE CHURCH.—The work of erecting the new chancel at Brighouse Parish Church is now completed. The work has been done under the superintendence of Mr. Hodgson Fowler, architect, of Durham, and it has cost over 3,000*l*.

METHODIST CHURCH, BELFAST.—The new Methodist church, erected at Jennymount, Shore-road, was opened on the 3rd inst. The building is 76 ft. in length and 57 ft. in width, and in addition to it there is a lecture hall and schoolroom at the rear. The pulpit, gallery front, and pews are of pitch-pine, and the gallery front being picked out in colours and finished on top with a mahogany capping. The heating is by hot water, the apparatus having been supplied by Messrs. Musgrave, Ltd. Mr. Harrison M'Cloy had charge of the plumbing. Mr. Stanley Johnson carried out the gas-fitting, also the laying of the wires for the electric lighting, under the supervision of Mr. John Woodside. Cathedral lead lights have been supplied by Messrs. Campbell Brothers. The contractor for the entire work was Mr. James Kidd, and the architect Mr. W. D. R. Taggart. The cost is estimated at 5,000*l*.

WESLEYAN CHAPEL, DUFFIELD, DERBYSHIRE.—The new Wesleyan chapel, which has been erected at Duffield, was opened on the 7th inst. The work has been carried out from the designs of Mr. J. Jameson Green, architect, Liverpool, by Mr. Andrew Hingley, builder, Duffield, at a cost of 3,134*l*.

FREE CHURCH HALL, WENWICK, LANCASHIRE.—The foundation-stone of this building was

laid a short time ago. The architect is Mr. G. T. Oakey, of Bristol.

WORKHOUSE EXTENSIONS, CHESTERFIELD.—The new workhouse infirmary and the alterations and additions which have been made to the workhouse, at a cost of over 40,000*l.*, were open to inspection a few days ago. The new buildings consist of an infirmary, a nurses' home, porter's lodge, laundry, kitchen, boiler and engine house, workshop, mortuary, disinfector, additions to wards, entrances, stores, administration block, and a general remodelling of the workhouse. The infirmary is parallel with, and close to, Newbold-road, in front of the old workhouse premises. It is in three connected blocks, the central building being devoted to administration purposes. There is accommodation for 204 patients. The place is illuminated by electricity, and heated throughout by hot water. The nurses' home provides accommodation for twenty nurses. The laundry is situated on the west side of the workhouse. Messrs. Rollinson & Son, Chesterfield, were the architects; Messrs. Maule & Co., Chesterfield and Nottingham, the contractors; and Mr. J. Rushton, Chesterfield, was the clerk of the works.

CO-OPERATIVE SOCIETY'S NEW PREMISES, CARLISLE.—New premises have been erected for the directors of the Carlisle South End Co-operative Society, in Botchergate. To obtain the large shop accommodation required, the architect, Mr. T. Taylor Scott, of Carlisle, adopted a central arcade scheme with a wide approach from Botchergate, which gave a total frontage of window space of about 350 ft. The front elevation has been constructed with white polished ashlar stone and dark Shap granite pilasters, with carved caps. It is in the Renaissance style, freely treated, with large gables at each end, and a balustrade between same, divided by ornamental gablets. The arcade is covered over by an ornamental iron roof and glass, with ventilating glazed decklights, and round the four sides on each floor has been constructed overhanging fireproof balconies, protected by ornamental railing, access to each balcony being obtained by means of a fireproof staircase. The balcony on the second floor, besides leading to all the showrooms, gives access to the large public office, strongroom, and checkroom, and the private offices for the secretary, treasurer, and manager. The balcony on the third floor is mainly used for the large hall, capable of accommodating between 800 and 900 people. The platform occupies part of one side, and the roof is a large span open iron structure. A storage-room and caretakers' room occupies one end. The boardroom has also been arranged on this floor, with panelled pitch-pine dado, and boarded walls and ceiling, together with committee and waiting-rooms. The boot-repairing shop, etc., with electric-driven machinery, is also on this floor, and a dining or refreshment room for the assistants. The fourth floor contains workrooms. The clerk of works was Mr. S. Jack, and the local contractors engaged were Mr. William Baty, builder; Mr. R. Nelson, carver; Mr. G. Black, joiner; Messrs. R. M. Ormerod & Son, plasterers; Mr. Thomas Sowerby, plumber; Mr. F. Hart, slater; Messrs. R. M. Hill & Sons, painters, electric light, and ventilating engineers' work; Mr. John Corbett, ironwork. The outside contractors were Messrs. Mackenzie & Moneur, Ltd., heating engineers, Edinburgh; Messrs. Bladen & Co., ironfounders, Glasgow; Messrs. Pickering & Co., Ltd., electric hoists and machinery, Stockton-on-Tees; Messrs. Merryweather & Co., fire appliances, London; Messrs. Pilkington & Co., mosaic work, Manchester; and Messrs. Maw & Co., Ltd., tilework, Shropshire.

CONSERVATIVE CLUB, PARKSTONE.—A new Conservative club has just been opened at Parkstone. It has been erected by Messrs. A. & F. Wilson, builders, from plans prepared by Mr. E. E. Clarke, architect. On the ground floor there are an attendance hall, waiting-room, and other offices, whilst a billiard-room is in course of erection. On the first floor are a cardroom and reading-room, a luncheon and tea room, committee and club room, chess and whist room, lecture, debating, and assembly room. On the second floor are a cloakroom, bathroom, members' lavatory, and caretaker's room. There is also another billiard-room; provision has been made for lighting the building by gas and electricity. The installation of the electric light, together with erection of a 5½ h.-p. gas-engine and a 60-light dynamo, are in the hands of Mr. A. W. Hine, A.M.Inst.C.E.

UNIVERSITY SETTLEMENT HALL, CARDIFF.—A new University Settlement hall has been erected at the corner of Walker-road and Splott-road, Cardiff. Mr. R. W. Schultz is the architect, and the cost has been 1,800*l.* The walls are built of red brick, and the roof is of red tiles.

CONSERVATIVE CLUB AT HOYLAND, YORKSHIRE.—The Countess Fitzwilliam laid the corner-stone, at Hoyland Common, on the 6th inst., of a new Conservative club. Mr. E. J. Sykes is the architect, and Mr. A. Hemingwhay the builder.

RIDLEY HOUSE, BETHNAL GREEN.—Ridley House, which forms an addition to the facilities for developing church work in the parish of St. James the Less, Bethnal Green, was opened by Lady Wimborne on Saturday last. The Building, of which Mr. E. Hoole is the architect, affords accommodation, on the ground floor, for a young men's club and Bible class hall, and for a medical mission and surgery; on the first floor for four club-rooms and rooms for curates, and for the University men; and on the second floor for bedrooms and cubicles for young men, with dining-room and kitchen.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Charles Lee, formerly General Manager and Secretary to Messrs. Hobbs, Hart, & Co., Ltd., Arlington-street, Islington, has recently been appointed Managing Director of the Company.——Mr. B. G. Wilmer, who has traded under the name of Ashton & Green Iron Co. for over fifteen years and is, and will continue to be, the sole proprietor of the business, announces that, on and after January 1, 1905, the title will be changed to Wilmer & Sons.

INSTITUTE OF CERTIFIED CARPENTERS.—The annual Report of this Institute states that the number of new members elected this year has been thirty-two, as against sixteen last year. The Institute numbers 130, exclusive of Honorary Members. Among the proceedings of the past Session was the opening of a discussion by Mr. W. Middleton, on "Failures in Carpentry and Joinery," which was illustrated on the blackboard by sketches, and was continued at the succeeding meeting; a visit to the Victoria and Albert Museum, in course of erection at South Kensington; a visit to Messrs. Walker, Parkers & Co's works, Belvedere-road, S.E., on this occasion the party being conducted over by Mr. Palmer; to St. Paul's Cathedral, Sir John Riddell conducting the members over, and another visit to inspect the dome and roofs. In September a new departure was taken by the members in organising an outing, the party taking train to Eltham, where an inspection was made of the old timber roof of Eltham Palace.

APPOINTMENT.—Mr. Alfred Griffin, of No. 34, Coleman-street, E.C., and Blackheath, has been appointed Surveyor to the Trustees of Morden College, Blackheath, from the beginning of next year, upon the retirement of Mr. Thomas Barnes-Williams.

EDINBURGH AND LEITH BUILDING TRADES' ASSOCIATION.—The annual dinner of the Edinburgh, Leith, and District Building Employers' and Allied Trades' Association, in conjunction with the Building Trades' Exchange, took place on the 8th inst. in the Royal British Hotel, Princes-street. Councillor Neil M'Leod, President of the former body, presiding over a gathering of about 150. The croupiers were Messrs. Patrick Knox, John D. Burn, and James Millar. Replying on behalf of Leith to the toast of "The Corporations of Edinburgh and Leith," Bailie Kinnaird said that, according to a statement he had received from the Burgh Surveyor, warrants had been granted during the year for buildings of a total value of 180,000*l.*, as compared with 270,000*l.* in 1903, and, had it not been for the new poorhouse, the total value would have been less by about one-half. The prospect of the building trade in Leith, he said, was not very bright, and, judging by the number of unlet houses, the supply seemed to be greater than the demand. In acknowledging the toast of "The Architects and Surveyors," Mr. A. Lorne Campbell said that, at the present time, they had not much prosperity to share. With the builders they were brothers in affliction, but they hoped for improvement in the course of another year. He quoted the remark of a public official in the city who had said to him in conversation that for the last forty years he had not seen such slackness in work, and that when the city was half the size he had seen double the work doing. Mr. James Millar, in replying to the toast of the evening, said that, while they were passing through a strain at the present time, they knew it could not last for ever.

DRAINAGE PLANS.—The Public Health Committee of Battersea reported on Monday having considered the circular letter from the Royal Institute of British Architects, suggesting that the London County Council by-laws respecting drainage plans should be modified. The Committee was of opinion that no alteration in the by-laws was necessary.—The Works Committee of Hammersmith Borough Council reported on Tuesday having agreed in favour of informing the London County Council that their experience does not show that the suggested modification of the by-laws is necessary.—On Tuesday the Public Health Committee of St. Pancras Borough Council reported that they had decided that the communication from the Royal Institute of British Architects be marked "Received."

COMBINED DRAINAGE.—Lambeth Borough Council has passed the following motion:—"That the President of the Local Government Board be urged to promote remedial legislation on the subject of combined drainage in the coming Parliamentary Session."

WATER SUPPLY, TEIGNMOUTH.—At the meeting of the Teignmouth Urban District Council on the 6th inst., a report was presented by the Surveyor, Mr. C. F. Gettings, of alternative routes for the laying of pipes to bring in a supply of water from Paignton Urban District Council. After some discussion the further consideration of the subject was adjourned for a fortnight.

UNDERGROUND ROOMS IN ST. PANCRAS.—The Public Health Committee of the London County Council reported as follows at Tuesday's meeting of the Council:—"We have from time to time reported the progress made by the St. Pancras Metropolitan Borough Council in dealing with illegally occupied underground rooms in that borough, and are glad to state that, from a report recently issued by the Medical Officer of Health of St. Pancras, it appears that between July, 1903, and July, 1904, 538 notices were served upon the owners of underground rooms which were occupied as dwellings in contravention of the provisions of the Public Health (London) Act, 1891; 165 of these notices referred to premises in South St. Pancras, and 373 to premises in Central St. Pancras. The notices were served in eight separate groups at varying intervals, the occupants being allowed from two to four months in which to obtain other dwellings. All the notices were complied with with the exception of two. In one of these two cases proceedings were taken, with the result that the magistrate gave the defendant one week in which to clear the room; in the other case the occupiers locked up their room and left London to go hop-picking, and have not yet returned, but in this case the landlord has promised to deal with the matter as soon as they do return. The Borough Medical Officer states that the 538 notices above referred to deal with all the known underground sleeping-rooms separately occupied which have their ceilings less than 1 ft. above the level of the adjoining street or ground."

MUNICIPAL COUNCILS AND ARCHITECTURAL WORK.—At the meeting, on Tuesday, of the West Ham Corporation, the Works Committee reported having had under consideration a memorial from the Royal Institute of British Architects and the Architectural Societies in alliance therewith throughout the United Kingdom, urging upon county and municipal authorities:—(1) That architectural work be not placed in the hands of engineers or surveyors; (2) that where it is deemed desirable for architectural work to be carried out by county or municipal officials, such officials shall be required to have passed the qualifying examinations of the Royal Institute of British Architects; (3) that the work of an official architect be restricted to structures of secondary importance, and that all buildings of a monumental character be entrusted to independent architects, to be selected in such a way as may seem best to the local authority. The Committee was unable to recommend that any action be taken with respect to the memorial. The report was adopted.—On Tuesday, the Public Health Committee of St. Pancras Borough Council reported having decided that the memorial be merely received.

HOUSING SCHEME, MANCHESTER.—The Manchester City Council, having asked for leave to borrow 13,780*l.* for the purchase of land for building purposes, Major C. E. Norton, R.E., held an inquiry at the Town Hall on the 8th inst. The land to be purchased is in Cheetham Hill-road, Queen's-road, and Boyle-street. It is required for the purposes of part 3 of the Housing of the Working Classes Act, 1890. Mr. Hudson, Assistant Town Clerk, stated that the land mentioned in the application was part of a larger plot containing 7½ acres belonging to the Earl of Derby. The price was 6d. a yard at twenty-four years' purchase. Not less that 22,988 sq. yds. was to be used for housing purposes. The remainder would be set apart for a school, and the widening of Cheetham Hill-road. Mr. T. de Courcy Meade, City Surveyor, produced a plan of the property to be acquired. The site, he said, contained a net area of 22,988 sq. yds., and is about one mile and a third from the centre of the city. The ground is almost

level and well adapted for the purpose for which it is intended. A large number of working-class dwellings are in course of erection by private owners in the immediate neighbourhood.

THE NATIONAL REGISTRATION OF PLUMBERS.—The Committee appointed by the Conference of Health and Water Authorities, Architects, and Plumbers, held at Birmingham in October, 1900, held another meeting this week in the Guildhall, London. The Committee is composed of Health and Water Authorities and Plumbers in equal proportions, and elected on a basis of a minimum population of a quarter of a million. Mr. W. D. Caroe, Architect to the Ecclesiastical Commissioners, Warden of the Plumbers' Company, presided. Representatives attended from Birmingham, Bradford, Bristol, Glasgow, Leeds, Manchester, Newcastle, Norwich, Nottingham, and Plymouth. The Committee considered the resolution passed in the Municipal Section of the Sanitary Institute Congress, recently held at Glasgow, as to its being necessary to the effective administration of the Public Health and Water Acts that the authorities should be recommended and empowered to require the competency of plumbers employed to execute or inspect plumbers' work under the public regulations, should be certified by the Plumbers' Company under the conditions appertaining to the National Registration of Plumbers, or such other body as may be set up by statute, or be approved by the Local Government Board. Considerable discussion arose on the subject of the register being immediately closed to all applicants who did not pass an examination in practical work as well as theoretical subjects. It was urged that this would be unfair to some of the older men, and, having regard to the divergent views taken by the district councils in various parts of the country on the subject, it was resolved to extend the period to December 31, 1905. The returns showed that upwards of 12,500 plumbers had been registered by the Company. Resolutions were passed recommending for general adoption apprenticeship for plumbers on the lines of the indenture settled by the London Apprenticeship Board, and further recommending that all apprenticeships should be in writing, as it was shown that the loose practice of taking lads upon verbal agreements varied greatly, and resulted in their being, in some cases, insufficiently trained, and also offered inducements to jerry builders and others to employ apprentices only partly trained. Communications were laid before the Committee from the Royal Institute of British Architects, and Societies allied to the Institute, as to the nomination of local authorities to act on the district councils. Resolutions were passed giving effect to this arrangement, and to the election, *ex officio*, of persons in virtue of their holding official positions in connexion with public health and water administration. Plumbers were appointed from Birmingham, Bristol, Glasgow, and Manchester, to act with the London Board of Examiners in settling tests of workmanship, etc. Resolutions were also passed referring questions relating to the examination of students in plumbing classes to local authorities and the Board of Education.

INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND GRAVERS.—At the third annual general meeting of the International Society of Sculptors, Painters, and Gravers, the Vice-President, Mr. John Lavery in the chair, the Hon. Secretary, Mr. T. Stirling Lee, reported that the last exhibition had been entirely satisfactory. The number of works submitted was greater than it had hitherto been, and the financial result was such as to defray all expenses. The great loss of the Society this year has been the retirement from office of the Hon. Secretary, Professor George Sauter, whose services were greatly appreciated, and his retirement much regretted. The losses to the Society by death were:—Mr. J. Staats Forbes, Mr. Fred Sandys, Mr. D. Vierge, and Mr. John Galsworthy. By the death of Mr. Staats Forbes the Society had lost one of its best friends and financial supporters. It is hoped that the works of Mr. Sandys and Mr. Vierge will be adequately represented in the forthcoming exhibition. An arrangement has been come to with the Corporation of Manchester to take on the exhibition at its closing in London. The arrangements for this exhibition are most satisfactory, and appointments have been made likely to be of the greatest service to the Society, by selecting delegates aboard and in America. The following artists will act for next year:—Mr. Blanche for France; Mr. Neven Du Mont and Professor Sauter for Germany; Mr. Fragiacomo for Italy; Mr. Zorn for Sweden; Mr. Claus for Belgium; Mr. Breitner for Holland; Mr. Chase for America; and Mr. Walton for Scotland. It is ensured that in this way the Society will succeed in obtaining a more representative exhibition from each country. The Memorial Exhibition of the late President, Mr. Whistler, will take place in the New Gallery during the latter part of February and March, 1905. The following gentlemen were elected to act on the Selecting and Hanging Committee for 1906:—Messrs. H. Wilson, J. Pennell, B. Priestman, A. Neven Du Mont, C. H. Shannon, J. H. Furse, W. Strang, and Grosvenor Thomas.

BOLTON ARTS GUILD.—"FLORENCE AND THE RENAISSANCE."—In connexion with the Bolton Arts Guild, Mr. Marshall Robinson delivered on Tuesday last, at the Guild Rooms, a lecture on "Florence and the Renaissance." He said the term "The Renaissance" was usually applied to the revival of classical art in the XVth and XVIth centuries, but it applied also in a much more interesting degree to that earlier period following immediately upon the time known as the Dark Ages, when there was a general awakening in Italy, and a desire to revive the arts and civilisation of the ancient Greeks and Romans. Mr. Robinson sketched the decay of art up to the reign of Constantine, who attempted to revive it, and afterwards referred to the reign of Charlemagne in the VIIIth century and his partial success in the revival of art and civilisation. He next referred to Pisa, where the seeds of the revival were sown. Florence was next touched upon, as well as Fiesole, the ancient Etruscan city from which Florence sprang. He sketched the history of Florence up to the time of Dante in 1265, and, returning to Pisa, he illustrated the monuments—the cathedral, the baptistry, the leaning tower—and the work of Niccola Pisano. He next took his hearers to Siena, and, returning to Florence, followed the development of early art both in sculpture, architecture, and painting; through the Byzantine Giottesque schools as regards painting, with Ghiberti, Donatello and others as regards sculpture, and Arnolfo Di Cambio, Giotto, Orcagna, Brunelleschi, etc., as regards architecture. To illustrate the various steppingstones in the development of art, Mr. Robinson brought to his aid some 130 slides, taking the various branches of art in their chronological sequence. The lecture dealt mainly with the early revival, and it is the intention of Mr. Robinson to deal with the later development of art in a second lecture to be delivered in February.

Legal.

CASE UNDER THE LONDON BUILDING ACT, 1894.

AT the North London Police Court on the 12th inst., Mr. Alfred Louis Camille was summoned before Mr. J. Dickenson, at the instance of Mr. W. G. Perkins, District Surveyor for West Hackney (*a*) for doing work to, in, or upon, a building without notice; (*b*) for failing to comply with a notice of irregularity served by the District Surveyor.

The defendant had fixed, or set up, in a stable at No. 101, Dalston-lane, Hackney, a smith's forge or furnace, having an iron chimney or flue carried up into and through the roof.

In reply to the magistrate, the defendant contended that the District Surveyor could not, as he had by the notice of irregularity, require him to substitute a brick flue for the iron pipe, as pipe flues were permitted by section 66 (3) of the Act.

The District Surveyor argued that section 66 (3) was a rule applying to close fires only, and not to a forge or furnace, and that, having regard to section 64 (4) and (12), the chimney or flue therefrom should be enclosed with brickwork. It was also pointed out that there was a large amount of woodwork both in this stable and the adjoining stables to be considered.

The defendant was fined 7*s.*, with 23*s.* costs, for doing work without notice, and ordered to comply with the Surveyor's notice within twenty-one days, and pay 25*s.* costs on the second summons.

Mr. C. V. Young, solicitor, appeared for the District Surveyor.

ACTION BY ARCHITECT AGAINST BUILDING OWNER.

THE case of Stocks *v.* Dean came before Mr. Justice Kennedy, in the King's Bench Division, on the 9th and 10th insts.—an action, brought by Mr. Frederick Wm. Stocks, an architect and surveyor, of Middlewich, Cheshire, against Mr. E. Houghton Dean, of Hawkeshead, Lancashire, to recover 370*l.* for services rendered, and also for damages for alleged wrongful dismissal.

The defendant denied that there was anything due to the plaintiff, and alleged that he was justified in dismissing the plaintiff. He also counterclaimed against the plaintiff for damages for alleged negligence, which the plaintiff denied.

Mr. Ellis Griffiths and Mr. Owen Roberts appeared for the plaintiff, and Mr. Samuel Moss for the defendant.

Mr. Ellis Griffiths, in opening the case, said the plaintiff had thirty years' experience in building and engineering work. He had been employed by the Duke of Buccleugh, and the Ecclesiastical Commissioners, had been Assistant Surveyor to the Accrington and Clitheroe Urban District Councils, and was now Surveyor to the Middlewich Council. In 1901 he was engaged by the defendant to act as his architect and surveyor for the development of an estate in Knutsford, which it was calculated would take five years, but on December 16, 1902, he was dismissed without notice. The cost of the work was estimated roughly at 40,000*l.*, and plaintiff was to have a commission of 4 per cent. on the cost of the buildings when erected. There were three and a half years of the contract still to run, during which period he would have received 1,630*l.*

His lordship said he had never tried a case before in which a professional man paid by fees sued for wrongful dismissal. It was rather a strong thing to say that the defendant had tied himself to giving the plaintiff all the work for the five years, and if it was a question of employment with reasonable notice he could not see how he was going to deal with the matter.

Mr. Ellis Griffiths submitted that the mode of payment made no difference. The character of the occupation must be looked at, and, in his opinion, the plaintiff was entitled to the same notice as if he were receiving a salary.

His lordship: You are putting yourself in the position of a servant, and I do not think a professional man would care for that.

Mr. Moss admitted that, if his client was not justified in dismissing the plaintiff, the latter would be entitled to some damages.

Mr. Ellis Griffiths said the defendant alleged three justifications for the dismissal. He said that the cost of the buildings exceeded the estimate by 10 per cent., that there had been a lack of skill and want of care on the plaintiff's part, and that he had been guilty of improper conduct. The last two were very serious charges to make against a professional man, but he would be able to dispose effectively of them.

The plaintiff was called and corroborated his counsel's opening statement.

In cross-examination, he denied that any of the work charged for was done after the date of his dismissal. The cost of some of the buildings exceeded the estimate by 10 per cent., which was a very moderate excess. He admitted that in one case there was an excess of 30 per cent., but that was due to the work having been altered in various details. He knew that two of the drains had been taken up, but that was not due to any fault in the original laying of them. A contractor had offered him 10*l.* to get him a contract, but he refused the money, and told the defendant of the matter. Subsequently the contractor sued him for 26*l.*, and plaintiff, acting on the advice of his solicitor, counterclaimed for the 10*l.*

In re-examination, plaintiff stated that about six weeks before his dismissal defendant told him he greatly appreciated his work, and, as he had been put to a great deal of trouble, he made him a present of 100*l.*

Mr. John Holden, F.R.I.B.A., F.S.I., and Mr. J. T. Ashton, an architect and surveyor, gave evidence that, in their opinion, plaintiff's charges were reasonable.

This being the plaintiff's case,

Mr. Leason, an architect and surveyor, of Manchester, gave evidence on behalf of the defendant that he found some of the drains not jointed with cement.

Mr. R. B. Newhall, a plumber and sanitary engineer at Knutsford, examined, said that in November, 1903, he was called in to examine the drainage of one of the defendant's houses in St. Peter's-avenue. It took about thirty hours to find the man-holes—they were buried, which was a most unusual thing. After he found the man-holes, he tested the drains. He applied the smoke test, and found that the drains were very wrong. He found that most of the drains had mortar joints—90 per cent. of mortar and 10 per cent. of cement.

In answer to his lordship, Mr. Moss said that the contract specified cement joints.

Examination continued,

If the architect had applied the water test or the smoke test the defect would have been easily discovered.

At the conclusion of the evidence and the addresses of counsel, his lordship, in giving judgment, said the plaintiff was a gentleman who had entered into a contract, contained in

the correspondence, with the defendant who had property which he wished to develop as a building estate. The defendant also, apparently, employed the plaintiff in other business matters which, though they appeared on the pleadings, were now removed from his consideration, and would be dealt with elsewhere. By the terms of the contract, as ultimately agreed, the plaintiff was to receive from the defendant 4 per cent. upon the cost of the actual works executed. The first question he had to decide was, whether the plaintiff was rightly dismissed, as he was by the defendant in December, 1902. When he said "rightly dismissed," he did not mean at all, and it must not be taken that he had implied, that, so far as competence was concerned, plaintiff could not, if he gave his mind to the matter, have been competent. All he meant by that was to ask himself whether the plaintiff had performed his duties in such a way that the employer could say that they could not go on any longer together. It was clear that the defendant would be justified in dismissing the plaintiff if, in addition to his not doing his work with care and skill, he had acted dishonestly in his building relations with the contractors. That was a point which had given him great anxiety, because one realised what such a charge was against a professional man—viz., that he had betrayed the interest of his employer, and had acted dishonestly. The alleged dishonesty was not known at the time of the plaintiff's dismissal, therefore it was not insisted upon as a ground for it. But it was clear law that, to justify a dismissal, a good defence could be raised upon misconduct, although it did not form the actual ground for dismissal. The question was, had the plaintiff acted dishonestly with regard to the transactions referred to in the evidence. His lordship, having referred to the evidence on this part of the case, said that, in his opinion, the charge was distinctly not made out. He thought, on the facts, he ought to come to the conclusion that, although the plaintiff was offered the 10*l.*, he did not intend to take it, and he thought the plaintiff had acted as a gentleman in telling his employer, as he did, and he was perfectly willing to believe that the plaintiff had acted honourably in so doing. The awkward part of it was the thing which the plaintiff brought upon himself, and that was when an action was brought against him for money which it was said he owed, a counterclaim was set up, and amongst other things in the counterclaim was a claim for the 10*l.* His lordship did not know where the blame was, but sometimes a man did not tell the whole facts to his solicitor, and probably the whole thing was a mistake. He thought that the balance of evidence showed that the plaintiff had acted honourably and as a professional man should act. Balancing the whole of the evidence together he would only say this, that it was not proved to him that anything dishonest had been done by the plaintiff. Although he thought there had been unbusinesslike transactions, he did not think he ought, in a case such as the present, to form an opinion hostile to the honesty of another man without stronger evidence than he had then before him. Then came the question of conduct on which the plaintiff was dismissed by the defendant—viz., that the plaintiff had gone so badly wrong that defendant could not really give him anything more to do. Although the defendant might have made alterations as the work went on, he thought the work cost considerably more than what the defendant intended to spend. Of course some margin must be allowed, because building owners would change their minds; but there was a serious blunder made in one case which had made a difference of 180*l.* over and above the contract price. There was no doubt a considerable increase in the cost of the work over the estimates, which would, of itself, not have justified the defendant in putting an end to the contract; but he thought, with regard to one matter, a case had been made out, that there had been a want of care and skill on the part of the plaintiff. He thought the matter of the drains had been badly neglected. When the drains were opened up it was found that there was practically no cement in the joints, and he thought that no architect, using reasonable care to his employer, ought to have passed them. The jointing in cement was actually specified, and it had been omitted. He could not doubt Mr. Newhall's evidence on that point. He thought the state of these drains, which had cost the employer 23*l.* to set right, was a thing for which the plaintiff was blamable. Then there was a complaint about two cellars, which it was said were damp. That was really only a comparatively minor matter, but it had cost the defendant about 31*l.* 10s. to put right. Again, there was a question as to a wall which was carried over a drain in such a way that, unfortunately, the wall had subsided for a certain length. The plaintiff said that was largely due to the alteration of the plans by the local authority. He was loath to say that there was anything serious in his want of care with regard to that. That stood on a different basis to the mischief caused by the bad drains and to the bad cellars of the house. He held, therefore, on those grounds that the defendant was justified in dismissing the plaintiff. His lordship, having gone at some length into the figures, entered judgment for the plaintiff on the claim for 118*l.* 4s. 7d., and for the defendant on the counterclaim for 35*l.* 18s. 5d., the plaintiff and the defendant to have the costs of the issues on which they had individually succeeded.

ARCHITECT'S JURISDICTION UNDER A BUILDING CONTRACT—IMPORTANT QUESTION OF CONSTRUCTION.

THE case of Robins *v.* Goddard came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 13th and 14th insts., on defendant's appeal from a judgment of Mr. Justice Farwell, sitting as an additional judge of the King's Bench Division.

The action was brought by the plaintiff, Mr. A. W. Robins, a builder, of Wanstead, against the defendant, Mr. T. F. Goddard, of Croxley Green, Rickmansworth, for a sum of money alleged to be due upon the certificates of the defendant's architect pursuant to a building contract. Defendant denied liability, and he alleged that the amounts which purported to be allowed by the certificates for work and materials were not in accordance with the provisions of the contract, and were unreasonable and excessive, and that some of the work and materials were not in accordance with the contract or as specified, but were defective, with the result that he would have to incur great expense in re-executing much of the work and in the purchase of proper materials. He accordingly counter-claimed for damages for the plaintiff's alleged breach of contract. Mr. Justice Farwell gave judgment for the plaintiff for the amount claimed, and held that there was no case on the counterclaim. The defendant now appealed.

Mr. C. A. Russell, K.C., and Mr. C. B. Marriott appeared for the appellant, and Mr. Duke, K.C., and Mr. Beddall for the respondent.

Mr. Russell, in opening the case, said several actions had been consolidated, which were brought by the plaintiff upon certificates of an architect under a building contract, to which a defence and counter-claim were pleaded by the defendant, the building-owner, alleging defects in the work and such like matters. Upon the case coming on for trial before the learned judge, he decided that the certificates were absolutely conclusive, and he gave judgment for the plaintiff, the builder, upon the certificates, and held that the defendant was not entitled to go into his counter-claim at all. The question ultimately came to be one as to the construction of a few clauses in the building contract. The contract was dated October 15, 1902, and it was in the form which was issued under the sanction of the Royal Institute of British Architects. He thought he should be able to show their lordships that the scheme of that form of contract was far from being what the learned judge had held it was, and really was just the opposite. The work was begun by the builder early in 1903. It was apparent from the first that the defendant was dissatisfied with the plaintiff's work, and in February, 1903, his dissatisfaction had gone so far that he wrote to the architect asking him not to give any further sums to the plaintiff. The architect, in spite of that, issued the first set of certificates, which formed the subject-matter of the action. In May, 1903 the defendant formally served the architect with notice requesting him not to issue any further certificates. Their lordships would see, when they looked at the contract, that the effect of the architect not issuing certificates would have been to leave to the arbitrator appointed under the contract the question of what was due to the builder and whether the certificates had been properly withheld. Notwithstanding that notice, however, the architect went on issuing certificates. He issued a further certificate on May 25 for 300*l.*, and his final certificate in July for 1,055*l.* odd. The first action was commenced on May 12 on the three certificates, and then the plaintiff applied for summary judgment under Order XIV. The defendant took out a cross-application that the whole matter should be referred under the clause of the contract, but the master took the view that the proper order to make was to give the defendant leave to defend, and subsequently, the other actions being commenced, they were all consolidated. The matter ultimately came before the Court of Appeal on the defendant's appeal from the order restraining the reference, and that appeal was dismissed. The next step was the trial of the claim and counter-claim before Mr. Justice Farwell. The learned counsel then referred to the material clauses in the building contract. He said the first clause he wished to refer to was No. 30, which provided that the contractor should be entitled under the certificates to be issued by the architect to the contractor within fourteen days of the date of each certificate, to payment by the employer from time to time by instalments when, in the opinion of the architect, work to the value of 100*l.* (or less at the reasonable discretion of the architect) had been executed in accordance with the contract, at the rate of 80 per cent. of the value of work so executed in the building, until the balance retained in hand amounted to 200*l.*, after which time the instalments should be up to the full value of the work subsequently executed. That the contractor should be entitled, under the certificate issued by the architect, to receive payment of 100*l.*, being part of the sum of 200*l.*, when the works were practically completed, and in like manner to payment of the balance within a further period of two months, or as soon after the expiration of two months, as the works should have been finally completed, and all defects made good according to the true intent and meaning thereof, whichever should last happen. It also provided that the architect should issue his certificates in accordance with the clause, and that no certificate of his should be considered conclusive evidence as to the sufficiency of any work or materials to which it related, nor should it relieve the contractor from his liability to make good all defects as provided by the agreement. Mr. Russell said the defendant's counter-claim, which the learned judge held was not maintainable, alleged insufficiency of work and materials to which the certificates related. In respect to that provision, his lordship had held the certificates were absolutely binding on the defendant. The arbitration clause No. 32 ran: "Provided always that, in case any dispute or difference shall arise between the employer or the architect on his behalf and the contractor, either during the progress of the works or after the determination, abandonment, or breach of the contract, as to the construction of the contract, or as to any matter or thing arising thereunder (except as to the matters left to the sole discretion of the architect under clauses 4, 9, 16, and 19, and the exercise by him under clause 18 of the right to have any work opened up), or as to the withholding by the architect of any certificate to which the contractor may claim to be entitled, then either party shall forthwith give to the other notice of such dispute or difference, and such dispute or difference shall be and is hereby referred to the arbitration and final decision of" (certain named persons). "Such reference, except on the question of certificate, shall not be opened until after the completion or alleged completion of the works, unless with the written consent of the employer or architect and the contractor. The arbitrator shall have power to open up, review, and revise any certificate, opinion, decision, requisition, or notice, save in regard to the said matters expressly excepted above, and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given as aforesaid in the same manner as if no such certificate, opinion, decision, requisition, or notice had been given." The rest of that clause dealt with the giving to the arbitrator full power as to the costs. Clauses 16 and 17 of the contract were important. Clause 16 ran: "The architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works within such reasonable time or times as may be specified in the order of any materials which, in the opinion of the architect, are not in accordance with the specification or the instructions of the architect, the substitution of proper materials, and the removal and proper re-execution of any work executed with materials or workmanship not in accordance with the drawings and specification or instructions, and the contractor shall forthwith carry out such order at his own cost. In case of default on the part of the contractor to carry out such order, the employer shall have power to employ and pay other persons to carry out the same; and all expenses consequent thereon or incidental thereto shall be borne by the contractor, and shall be recoverable from him by the employer, or may be deducted by the employer from any moneys due or that may become due to the contractor." Clause 17 was as follows: "Any defects, shrinkage, or other faults which may appear within twelve months from the completion of the works, arising, in the opinion of the architect, from materials or

workmanship not in accordance with the drawings and specification or the instructions of the architect, or any damage to pointing by frost appearing within the like period shall, upon the directions in writing of the architect, and within such reasonable time as shall be specified therein, be amended and made good by the contractor at his own cost, unless the architect shall decide that he ought to be paid for the same; and, in case of default, the employer may employ and pay other persons to amend and make good such defects, shrinkage, or other faults or damage, and all expenses consequent thereon or incidental thereto shall be borne by the contractor, and shall be recoverable from him by the employer, or may be deducted by the employer from any moneys due or that may become due to the contractor." By clause 18 the contractor had, at the request of the architect, within such time as the architect should specify to open for inspection any work covered up, and, on his refusal or neglecting to comply with such request, the architect could employ other workmen to open it up. The learned counsel said the effect of the learned judge's judgment was that a certificate given by the architect was conclusive in favour of the contractor unless the architect himself, under clause 17 of the contract, expressed an opinion unfavourable to the contractor. It might be that the architect here, having regard to what he had done, was not personally dissatisfied with the contractor's work. That would be a most important matter to be tried when the counter-claim was gone into—viz., whether the work was or was not satisfactory. But the fact that the architect was not dissatisfied was not conclusive on the employer that the work was satisfactory. There was no provision in the contract that the employer should not complain unless the architect was of opinion that the work was not satisfactory. He submitted that the questions raised by the defence and counter-claim as to the amount of the certificates and the sufficiency of the work and the materials used should be considered. An arbitrator could clearly have dealt with those questions, and have determined the matters in dispute as though no certificates were given. The question he would have asked himself would have been the amount for which the certificates ought to have been given. The general principle had been laid down again and again that, where an architect's decision on such a matter as payment was not final against one party, it was not final against the other. Here the withholding of the certificate was not final against the contractor.

The Master of the Rolls said that it looked to him as though the learned judge had construed the contract without reference to the arbitration clause at all, and that the arbitration clause did not apply. He asked if the counter-claim was limited to materials, or particularised.

Mr. Russell replied that defendant complained about the plumbing, as to defects in the drains, defects in the brickwork, and plastering, and so on. The particulars as to the complaints extended to several pages. In some cases the complaints were as to workmanship, and in others as to materials. The defendant also claimed damages against the plaintiff for delay in completing the work, and it was difficult to see how a claim for damages for delay could be shut out in the way it had been. He contended that the decision of Mr. Justice Farwell should be reversed.

Mr. Marriott, having followed on the same side.

Mr. Duke, on behalf of the respondent, said the right of appeal under the contract did not arise until after the completion, or alleged completion, of the works. That provision in the arbitration clause was the reason why the attempt to refer the interim certificates failed before the Master.

The Master of the Rolls: Was that action brought before the completion of the contract?

Mr. Duke replied in the affirmative. There were three consolidated actions tried before the learned judge, first for payments outstanding on the three certificates, the second was for the whole amount of one certificate, and the third was for the full amount of the final certificate. The final certificate was dated July 24, 1903. On August 11, the plaintiff gave notice under the arbitration clause. On August 13 there was a preliminary meeting before the arbitrator which the defendant did not attend. On September 1 the defendant issued a summons to restrain the plaintiff from proceeding with the arbitration, and upon that application an order was made by Mr. Justice Walton restraining the plaintiff from proceeding to arbitration. It did not lie in the defendant's mouth to say now he was prevented from taking that proceeding. To succeed in that Court defendant must show he could disregard the contract, and that he had a resulting cause of action at common law. The question was whether the terms of this contract were to be set aside by the building owner, and he was to be left at large to pursue the remedies he had at common law. He (counsel) did not assert that the architect's certificate was an award, but he did say that, by the contract, his certificate was final unless it was appealed against, and it had not been appealed against.

Lord Justice Stirling: The burden is upon you to show that the jurisdiction of the Court is excluded.

Mr. Duke agreed. He said that, when the work was nearly completed, the defendant undoubtedly gave the architect notice not to proceed with the work under the contract. The architect thereupon replied, "dismiss me," but the defendant declined to dismiss him, and said he would retain him as architect but forbade him to exercise his functions.

The Master of the Rolls: You suggest that was a breach of contract on the part of the building owner?

Mr. Duke: Yes; I ask your lordships to bear in mind the dilemma in which the builder was placed. The view I ask your lordships to take is that these elaborate provisions for conferring power upon the architect are intended to have effect, and that it cannot be said that this is an open building contract for work and labour which leaves the builder in the same position as though the builder were only to supply materials. Our view was that the interim certificates were to be paid within fourteen days. What happened with regard to the final certificate was that, when notice was given to the building owner that there were disputes, and that we desired a reference to the arbitrator named in the clause and we got an appointment before him, the building owner took proceedings to stop his arbitrating and brought his counter-claim, not only against the final certificates, but also against the interim certificates. I venture to submit on those facts that it is not fair that the builder should be deprived of the right for which he had contracted.

The Master of the Rolls asked if the parties could not agree on some gentleman to try the case.

Mr. Duke said that he was willing that the President of the Institute should name an arbitrator. This protracted litigation was ruinous to the plaintiff.

Mr. Russell said that defendant would prefer an official referee.

After some further discussion, it was arranged that the learned counsel on both sides should endeavour to come to an agreement on some special referee to whom the case could be referred.

In giving judgment, the Master of the Rolls said he thought the case was really unarguable. The point was whether the certificate of the architect was conclusive in the circumstances. The learned judge, for some reason, had ignored the arbitration clause in the contract, and, ignoring it, he thought the construction of the contract was clear. He (the Master of the Rolls) could understand, if clause 32 were not in the contract, that it might be contended that the certificate of the architect was final. The effect of that clause was to cut away the ground from beneath the plaintiff's contention that the defendant was debarred by the architect's certificate from setting up that bad workmanship or materials had been introduced into the building. The matter was to be dealt with by the arbitrator as if no certificate had been given. The common law jurisdiction of the Court remained, and the counter-claim was maintainable. But for the fact that Mr. Justice Farwell had ignored the existence of the arbitration clause he must have come to the same conclusion, as he (the Master of the Rolls) had. He thought the appeal must be allowed.

The Lords Justices concurred.

The costs of the appeal were made the defendant's in any event, the costs of the action and counter-claim being reserved until the result of the inquiry was known.

ACTON ANCIENT LIGHT DISPUTE.

THE case of Kine *v.* Jolly came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Romer, and Cozens-Hardy, on the 8th, 9th, 13th, 14th, and 15th insts. on the defendant's appeal from a judgment of Mr. Justice Kekewich in the Chancery Division.

(The case was reported in the issues of *The Builder* of July 23 and 30 and August 6, 1904.)

This was an action by Mrs. Sarah Kine, the owner of a freehold house and premises, known as "Woodthorpe," Acacia-road, Acton, against the defendant, Dr. Jolly, the owner of neighbouring premises, for a mandatory injunction, and alternatively for damages, in respect of the alleged obstruction of the ancient lights of the plaintiff, and also for trespass. From the amended statement of claim, it appeared that the ground floor of the plaintiff's premises had on the west side two windows, lighting respectively the drawing-room and a smaller sitting-room, and a door with glass panels and a window or fanlight over it, lighting the entrance-hall. The plaintiff alleged that, in spite of remonstrances made on her behalf, the defendant had erected and maintained a high building near to the said window, glazed panels, and fanlight, and had thereby materially obstructed the light from entering into her house, and thus interfered with her in the use and enjoyment of the said land and dwelling-house. The plaintiff also alleged that the defendant's building projected over and overhung her land, and that the defendant, by erecting and maintaining his said building, trespassed on her land. The defence was generally a denial of the allegations in the statement of claim. A great deal of expert evidence was given at the trial, and in the result Mr. Justice Kekewich held that, although there was some obstruction by the defendant's building with the light of the plaintiff's drawing-room, it still remained a well-lighted room. He therefore, in accordance with the rule laid down by the House of Lords in the case of the Home and Colonial Stores *v.* Colls, could not deem the obstruction of the light to that room actionable, and he decided that, taking that room alone, the plaintiff had no cause of action. He, however, found that the obstruction by the defendant's building to the plaintiff's morning-room was substantial, and such as to constitute an actionable nuisance within the meaning of the authorities on the subject. His lordship also considered that there was an obstruction to the light of the plaintiff's hall, and he made a mandatory order on the defendant to pull down so much of his house as caused a nuisance to the plaintiff by the obstruction of the light to the windows of the morning-room and the hall, as the same existed previous to the erection of the defendant's house, and he directed the defendant to pay the costs of the trial. Hence the present appeal.

Mr. Hughes, K.C., and Mr. Vernon appeared for the appellants, and Mr. P. O. Lawrence, K.C., and Mr. Cann for the respondent.

Mr. Hughes, in opening the case, said their lordships would probably remember something about it, as it came before that court last sittings, Mr. Justice Kekewich had granted a mandatory injunction in the case before the decision of the House of Lords in the case of the Home and Colonial Stores *v.* Colls. When the appeal came before their lordships from Mr. Justice Kekewich's decision, Mr. Lawrence, for the plaintiff, agreed he could not support the judgment, and admitted that the learned judge had misdirected himself. Mr. Lawrence agreed that the judgment could not stand as it was, and consented to the order being discharged and to the case being sent back to Mr. Justice Kekewich for a new trial. Their lordships accordingly sent the case back to Mr. Justice Kekewich to be retried, on the ground that they did not think that either the learned judge or the witnesses had directed their minds to the real issue to be tried. The matter had accordingly been before Mr. Justice Kekewich again, and, after hearing the evidence, his lordship adhered to the view he took before, and granted for the second time a mandatory injunction. The defendant now appealed from that decision. He (counsel) said, in the first place, there was no cause of action at all for an injunction or for damages, and, secondly, that, even though the plaintiff might be entitled to damages, there was certainly no case for a mandatory injunction. The short facts were these: The plaintiff, a widow lady, lived with her daughter and son-in-law, and she owned a freehold house in Acacia-road, Acton, and there was no doubt that her lights were ancient. The house had been built something over twenty years upon a plot which formed part of a building estate, where it was always contemplated building on the adjoining plots—one house to each plot. The defendant's plot was about 50 ft. wide. The defendant began to build about the latter part of 1902. His walls were almost completely up about February of 1903, and the plaintiff and the members of her family said that they felt the inconvenience, but they waited until April, 1903, when the walls were completely finished, before doing anything. It was said, with regard to that, that there had been an interview between someone representing the plaintiff and the defendant's architect, when something was said about the light, and that then the defendant's architect said he would take

care that plaintiff's light would not be injured. The architect completed the building, and he, at least, was still of opinion that the plaintiff's lights were not injured. Mr. Justice Kekewich took the view that the plaintiff was entitled to wait until the defendant's house was up to see if there was any injury done before coming to the Court. He (counsel) thought it was rather a novel proposition that a person could wait and see if he was injured before taking action for a mandatory injunction.

Lord Justice Vaughan Williams: Your case is that the plaintiff has lost her rights by believing what you said?

Mr. Hughes said the learned judge had found no actionable injury at all as regarded the light to the plaintiff's drawing-room. The main complaint was as to the light of the morning-room at the back—the north room in the plaintiff's house, which had one window looking towards the north and one towards the west, where the defendant's house was. Really, the only ground on which the learned judge had decided in favour of the plaintiff was in consequence of the injury done to the western window of the morning-room. That was a small room, some 13 ft. square, having two French windows, one looking north and the other west. The light was entirely unobstructed from the north-west, and really the obstruction was of a very slight character. The room was now admittedly well lighted. The witnesses admitted that it was, and the learned judge found that it was. As he (counsel) understood the decision of the House of Lords in the Colls case, it was a complete answer to the plaintiff's action. The plaintiff's morning-room had a much better light than such rooms usually had.

Lord Justice Vaughan Williams: Is it quite right to say that the House of Lords laid that rule down irrespective of the locality of the house?

Mr. Hughes: Not entirely, my lord. You, of course, apply different considerations to houses in town and to houses in the suburbs.

Lord Justice Vaughan Williams: Does the plaintiff say that she lives in town?

Mr. Hughes: No; in Acton.

Lord Justice Vaughan Williams: Well, I take it that Acton is in the country.

Mr. Hughes, continuing, said that the House of Lords had certainly laid down that, if a person had sufficient light for ordinary purposes, he had no ground for complaint. Here it was important to remember there were building plots fronting a suburban road, and everyone must have known it was intended to build houses in the road fronting one another. It was important to consider whether you could, in such a position, expect to have your light not interfered with.

Lord Justice Vaughan Williams: You say you have left to this lady quite as much light as she can expect?

Mr. Hughes: Yes; and all she can expect for ordinary purposes. I would go this length and say that, even as the law was understood before the decision in the Colls case, there was no substantial interference with the plaintiff's light at all. The learned judge found at the first trial, in case he was wrong as regards the mandatory injunction, that the damages would be 100*l.* for the morning-room and 50*l.* for the drawing-room. At the second trial he thought the damage to the morning-room alone was 400*l.* The whole house was bought for about 1,600*l.*

Lord Justice Vaughan Williams: There are people who would say they would not live in a dark house if they were paid to do so.

Lord Justice Romer: I can understand it being said that the plaintiff's house would be considerably more valuable if it should have no other house near it. The plaintiff must, however, admit that people were entitled to build so long as they did not interfere with the 45 degrees, to say the least of it. Therefore the damage can only be for the excess—damages for the wrong-doing.

Mr. Hughes agreed. He said the effect of the decision of the House of Lords in the Colls case was that the plaintiffs in that case, the Home and Colonial Stores, had no right to complain when, after the defendant's building had been erected, they had as much light as other people had in Worship-street.

Lord Justice Vaughan Williams: That is it exactly.

Mr. Hughes then read the judgment of Mr. Justice Kekewich, and referred at some length to the evidence given in the Court below.

After some further argument, Lord Justice Vaughan Williams, addressing the learned counsel, said that, as at present advised, the Court agreed in his contention that this was not a case for a mandatory order, and it would perhaps be convenient that Mr. Lawrence should be heard at once on the subject. Whether it was convenient to do so or not at that stage must depend more or less on the argument Mr. Hughes meant to address to the Court on the question of damages, and the *quantum* of damages. The difficulty his lordship felt was this. If he had had to deal with the case himself he did not know how far he should have agreed, or not have agreed, with the decision of Mr. Justice Kekewich about the light to the morning-room. He was inclined to think that, notwithstanding the decision in the Colls case, he should have been more against the defendant as to the obstruction to the light to the drawing-room.

Mr. Hughes replied that, with respect, he thought it was impossible to say that the drawing-room had been injured.

Lord Justice Cozens-Hardy said his opinion was that, if the defendant's appeal had come on before the decision of the House of Lords in the Colls case was given, it would not have been a very hopeful one.

Mr. Hughes said that probably that would be so. If you could regard the west window of the drawing-room alone, it was probably more affected than the morning-room, because the obstruction was more immediately opposite to it. The learned judge had found that the morning-room was exceptionally well lighted before, and was even now well lighted. That came exactly within the ruling of the House of Lords in the Colls case. The House of Lords said, in effect, that what you had to look at was not what you took away, but the quantity of light left. Lord Davey said that the use of light for a special purpose did not give one a higher right than he would otherwise have had.

Lord Justice Vaughan Williams: Is there any authority before that for such a proposition?

Mr. Hughes: I do not think that had been much considered before that. But that does not come in question here, because there was no extraordinary amount of light required.

Lord Justice Vaughan Williams: But there is a question of a house in which the occupier may expect a reasonable amount of light, having regard to the fact that she lives in the open suburbs and not in the close town.

Mr. Hughes: I submit she has still got that. The only special user suggested by my learned friend, and adopted by the learned judge, was that this morning-room had very special value as a temple consecrated to the mental affections. It was really the least cheerful room in the house, and the smallest sitting-room, and it is very difficult to believe that it is of such immense value. The plaintiff's witnesses did not really dispute that the morning-room was still a well-lighted room. For these reasons I submit the judgment is erroneous, even on the findings of the learned judge, and should be discharged.

Mr. Lawrence, on behalf of the respondent, supported the judgment of Mr. Justice Kekewich. He said the learned judge had most carefully considered the evidence given on both sides, and before arriving at the conclusion he had done, had reserved his judgment. What his learned friend Mr. Hughes did was to invite their lordships to reverse Mr. Justice Kekewich's decision on a pure question of fact. He submitted that the learned judge had not misdirected himself, and that this Court would shrink from reversing his decision on a pure question of fact.

Lord Justice Romer: Supposing we come to the conclusion that no sufficient case has been made out for a mandatory injunction; then the judgment of Mr. Justice Kekewich must be attacked.

Mr. Lawrence replied that the plaintiff had said all along that she wanted a mandatory injunction. He submitted that the ruling of the House of Lords in the Colls case was meant to apply to the obstruction of light to business premises in the City or in towns. There were cases which had gone to the House of Lords where it had been held that if the comfort of the owner of a dwelling-house was materially disturbed by the obstruction of light, that constituted a nuisance. The first question in the present case was, aye or no, was there a nuisance established? He thought the Courts would have to draw a distinction between a nuisance to business premises and a nuisance to dwelling-houses. In the case of business premises the Court had to find out whether the nuisance was such as would prevent the plaintiff carrying on the business as beneficially as he had hitherto done. In the case of a dwelling-house the question for the Court to determine was, whether the occupants of the house had been interfered with by what had been done, and whether the building was in a sensible degree less fit for the purpose of occupation. The test was not as his learned friend had put it, whether there was sufficient light left. In the case of a dwelling-house it was no defence to say that the plaintiff had as much light as other people had.

After some further arguments, the learned counsel submitted that the question which the Court had to decide was not how much light had been left to the plaintiff. The Court had not got to find out whether there was a standard of light to make a house comfortable. Supposing he (counsel) had a nice light library in a house in the suburbs, why should he be told, if some of his light was taken away, that it was not a nuisance because somebody else in another suburb had not got such a light room.

During the course of the learned counsel's address, a suggestion came from their lordships that the parties should endeavour to come to settlement of the whole litigation. They said that the case was one of great difficulty.

Mr. Lawrence replied that, if the Court thought that the plaintiff's claim ought to be reduced to a claim for damages, and that the mandatory injunction should be discharged, he would agree to that course, and leave it to their lordships to say what the damages should be. That offer, of course, was given on the understanding that the whole of this litigation was permanently ended, and that the defendant should pay all the costs of the two trials and of the two appeals. He also made an alternative offer that, instead of damages, the defendant should alter his house by taking off 18 in. from the top of the gutter board, that was to say, that the roof was to be sloped down, and the two chimneys removed. He was informed that the chimneys could be sloped up so as to come more into the middle of the house, and not be on the outside wall.

It was arranged that the defendant should have until the next morning to consult his counsel on this offer.

On Thursday Mr. Hughes stated that the defendant had considered the proposal made by his learned friend Mr. Lawrence, and he had come to the conclusion that he could not accept his offer.

Their Lordships intimated that, as that was so, the arguments must proceed.

Mr. Cann, following Mr. Lawrence, on behalf of the respondent, submitted that his client was entitled to a mandatory injunction. He argued that damages were not an adequate remedy in this case.

Mr. Hughes then replied on behalf of the appellant. The learned counsel, during the course of his address, apologised for taking up so much of their lordships' time, but he said the case had now become a most important one.

Mr. Hughes had not concluded his reply when we went to press.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

25,430 of 1903.—W. WRIGHT: *Water-Closets, Commodes, Bed-pans, and the like.*

Water-closets, earth-closets, urinals, commodes, bed-pans, and like utensils or appliances, which consists in the employment of a foul air exhaust pipe or shaft connected direct to the bowl of the closet or other utensil or appliance, and by which the foul air and stench is continuously removed during the actual use of such urinal or appliance.

25,874 of 1903.—J. PEARSON: *Hoisting Apparatus.*

A hoisting apparatus, consisting of a pinion having connected to it a disc furnished with teeth, inclined planes or cams adapted to engage corresponding teeth, inclined planes or cams on a disc loosely mounted on the pinion shaft in such a manner that the rotation of the pinion in one direction causes the pinion and loose disc to move sideways into contact with friction discs.

27,490 of 1903.—J. I. COOPER: *Domestic Fire Grates.*

This invention consists of a series of staples secured in rotation to a bar in an upright position; these form a grate for the purpose of fitting inside or outside of the fire grate to prevent cinders rolling out of the fire, the whole being made from wrought iron or the like, and being bent by the user to suit any shaped fire grate.

27,918 of 1903.—J. BLANC: *Pipes, Vessels, Tiles, and similar Articles.*

Pipes and other articles of paste-board or wood pulp, saturated with a hot mixture of coal tar previously raised to a high temperature, or other similar material having a base of mineral resin and plaster or cement.

28,804 of 1903.—R. MURRELL: *Greenhouses and like Buildings.*

This invention relates to greenhouses and like buildings. According to this invention, the greenhouse is preferably constructed with a

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

span roof upon an iron framework, chiefly of tubes suitably joined up and so arranged that the framework shall support the sash bars preferably without any centre uprights or timber purlins, and this is contrived by a system or series of stays and cross-bars, also of tubing, secured in tee pieces or by other suitable means, to the framework. This tubular framework is fitted with back nuts or other suitable means, and is so arranged and adjusted as to counteract and prevent any possibility of warp, twist, or vibration. The tubing, being in whole or part connected to the heating apparatus, is so arranged that it may form an additional circulatory and heating apparatus for the house.

70 of 1904.—J. W. PIPER: *Grates for Stoves and Furnaces.*

The combination of a grate, consisting of a grate ring and a series of grate bars having laterally-curved, tapering bodies, pivoted at their larger ends at equal intervals on said ring, each of said bars being provided on its concave side with a wing adapted to overlap the next bar to prevent the escape of fine fuel between adjacent bars when the same are in operative position, and means for swinging said bars simultaneously toward or away from the centre of said ring.

331 of 1904.—A. E. WHITEHEAD and H. J. MCCHEYNE: *Stoves.*

The stove consists of an exterior, ornamental or plain frame, with an interior or fire box, movable, and revolving on two pivots slotted into the exterior and having its axis horizontal. When the interior, or fire box, is revolved by pulling up the bottom to the top, it so reverses the interior by bringing the back to the front, and on the back there is an ornamental casting, which, when revolved and brought to the front, closes in the fireplace and forms an ornamental screen. There is a movable hood, which is fitted over the interior or revolving fire box, also slotted into the exterior, which regulates the draught as required, and also provides for the efficient ventilation of the room when the interior is revolved or closed in, and leaving an aperture over the top of the interior or revolving fire box to be regulated as required for a current of air.

722 of 1904.—H. LOSSIER: *Trusses for Cement and like Constructions.*

A truss for cement and like constructions, comprising a main truss bar or bars for extension or compression, and a number of cross-bars forming a secondary truss (shear truss), the cross-bars being rigidly connected to at least one of the main bars in such a manner as to prevent displacement of the cross-bar with regard to the corresponding main bar without the aid of the surrounding material and without decreasing the cross section of said main bar.

811 of 1904.—T. BEEVERS and THE SAFETY TREAD SYNDICATE, LTD.: *Mode of Constructing Staircases.*

A method of constructing staircases which consists in building into the walls metal blocks or plates having a roughened or corrugated outer side and adjustably fixing thereto correspondingly corrugated brackets to receive either temporary or permanent treads.

946 of 1904.—E. FOSTER: *Construction of Unclimable Fencings, Railing, Gates, Grilles, and the like.*

This relates to the construction of unclimable fencings, railing, gates, grilles, and the like, consisting in the employment of such double-flanged sections and dimensions of bars forming the component parts of the same, that the bars running in one direction may be passed through suitable holes in both flanges of the bars running in a transverse direction, so as to allow of the bars being locked together, without the aid of rivets, bolts, wedges, or other loose fastenings, by pressing outwards or otherwise distorting the flanges of the inserted bar between the flanges of the transverse bar.

1,065 of 1904.—T. G. RHODES and R. GAUNT: *Valve Discharge Apparatus for Flushing Cisterns.*

A valve discharge apparatus for flushing cisterns, consisting of a vertical, cylindrical casing formed with a side outlet pipe communicating with the flushing pipe of the cistern, said casing being closed at its upper end, while its lower or open end is provided with a base ring having an upturned, annular flange forming a valve seating and a weighted disc valve within the casing, having an india-rubber disc on its underside adapted to engage with the seating of the casing, together with means for operating the valve.

5,253 of 1904.—W. A. SIMPSON: *A Ventilating Appliance for Windows.*

A portable ventilating appliance for windows, furnished with hand hooks or the like, and arranged to be removably introduced between the window frame and the top or bottom sash, and provided with a ventilating chamber.

14,963 of 1904.—M. MENDOZA: *Flushing Apparatus for Water-closets, Lavatories, and the like.*

A flushing apparatus for water-closets, lavatories, and the like, comprising a casing having a water inlet and a water outlet, a valve adapted to close said water outlet, and means for unseating said valve, in combination with an air inlet tube and a valve for automatically closing said tube when the water level reaches same.

16,591 of 1904.—G. HARMAN and J. WING: *Holdfasts or Clips for Roofing Gutters.*

A small iron clip made of any strong metal in the shape of an S, the upper part being opened upwards at one end, the other end being curved so as to grasp the roofing gutter. The upper end is pierced with a hole to admit of the passage of a screw, which passes over the top of the gutter and is fixed into the wood under the roof, thus holding the gutter in a rigid and firm position. The object of these clips is to refix roofing gutters which are or are likely to become dangerous at a small cost and with expedition.

19,376 of 1904.—S. MONTGOMERY: *Picks.*

A pick, consisting in the combination with a head having an arm, and a socket in one end of said arm, said socket having one wall cut away to form a slot, of a bit adapted to abut against the arm, and having a tongue integral with and extending from said bit, said tongue fitting snugly within the said socket and slot, and means for securing the tongue within said socket.

20,240 of 1904.—F. A. WERNER: *Attachment for Window Sashes.*

An attachment for window sashes, comprising in combination, a resilient sheet-metal strip of step-like form, disposed longitudinally of the bottom rail of the sash, transverse strengthening straps, and screws passing through the said transverse straps and said strip, and entering the sash rail.

21,871 of 1904.—C. WRIGHT: *Fireplaces for Ranges and Stoves.*

A fireplace for ranges and stoves, distinguished by having the bottom grate pivotally mounted at or near its inner end upon rockers or arms, pivoted to the side of the fireplace, and being supported at its outer or front end by lugs which fit upon projections or catches formed in grooves or hooks on the front of the fireplace.

21,999 of 1904.—A. GASPARY: *Moulding Apparatus for Artificial Stone.*

An apparatus for simultaneously moulding a number of artificial stone slabs, the distinguishing feature being that the division plates which are swung in a mould that is open at both ends are mounted to rotate on a single shaft supported by lever arms pivoted on the mould.

22,121 of 1904.—J. DAVEY: *Domestic and other Analogous Heating Apparatus.*

A domestic or analogous water-heating apparatus, having a hot-water cylinder or reservoir, consisting in the employment of a relief valve contrivance, fixed upon the said cylinder or reservoir.

960 of 1904.—A. DISS: *Drain, Rainwater, and other Pipes, Sanitary Traps, Junctions, and the like, Applicable also to Gullies, Channels, Guttering, and the like.*

A drain, rainwater, gas, or like pipe section of telescopic construction, and comprising a sleeve and a draw pipe slidable therein, the outer ends of the sleeve and draw pipe being adapted for connexion with adjacent pipe sections, traps, junctions, or the like, and that end of the sleeve entered by the draw pipe having a socket to receive suitable composition or cement for making a joint.

1,330 of 1904.—W. BAYLISS: *Construction of Wood Paving and Flooring Blocks, and Fasteners for Securing Together Component Parts of such Blocks.*

A wood paving or flooring block, built up of a number of smaller pieces placed side by side vertically, of which some of the pieces are shorter than others, and are assembled therewith in a manner which leaves a number of depressions in the upper surface of the block.

11,944 of 1904.—W. P. THOMPSON (M. J. Kerns): *Apparatus for Shoring to be used in Connexion with the Construction of the Foundations of Buildings, Piers, and other Structures, and the like, and the Sinking of Wells, Shafts, and the like.*

A shoring apparatus, comprising plates which can be sunk side by side and at opposite sides of the cavity in the earth, said plates having a solid round edge or bead engaging a socket or slot in the edge of the adjacent plate so as to lock them together and collectively form a shoring or wall, in combination with stretcher stays and cross stays so arranged as to bind the plates on either side of the cavity securely together, and prevent them from collapsing or expanding.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

December 3.—By W. J. MAY & SON (at Liskeard).

St. Neot, Cornwall.—"Killham" and 36 a. 2 r. 8 p., f.	£655
"Westerlake Estate," 149 a. 1 r. 6 p., f.	1,025
"Diddylake Estate," 66 a. 0 r. 15 p., f.	401
"Browngelly Down," 92 a. 2 r. 27 p., f.	200
"New Closes Estate," 131 a. 1 r. 17 p., f.	525
"Redhill Downs," 100 a. 3 r. 39 p., f.	400
"Draynes Common Close," 193 a. 1 r. 29 p., f.	200
"Under Lane Field," 3 a. 3 r. 31 p., f.	140

December 5.—By CECIL HOBDAY.

Putney.—8, Putney-hill, f., p.	2,950
Shepherd's Bush.—16 and 48, Arminger-rd., u.t. 76¼ yrs., g.r. 12*l.* 12s., y.r. 70*l.*	755
Kentish Town.—10, Twisden-rd., u.t. 69 yrs., g.r. 6*l.*, y.r. 35*l.*	385
Pimlico.—14, Westmoreland-st., u.t. 29 yrs., g.r. 7*l.* 10s., y.r. 42*l.*	305

By H. J. WAY & SON (at Cowes).

Cowes, Isle of Wight.—Mary-st., "William the Fourth," p.h. and cottage adjoining, f., p.	720

December 6.—By DEBENHAM, TEWSON, & CO.

City of London.—18 and 19, London-wall ("Rayment's Hotel"), area 2,680 ft., f., p.	16,300
5, Foster-la. (s.), area 490 ft., f., y.r. 180*l.*	3,450

By C. W. DAVIES & SON.

Islington.—3, Copenhagen-st. (s.), u.t. 14½ yrs., g.r. 4*l.*, y.r. 65*l.*	130
57, Copenhagen-st. (s.), f., y.r. 50*l.*	680
8, Milner-st., u.t. 22¾ yrs., g.r. 9*l.*, e.r. 55*l.*	310
Barnsbury.—1, 2, and 3, Charles-st., u.t. 39 yrs., g.r. 18*l.*, w.r. 124*l.* 16s.	320
15, Everilda-st., u.t. 39 yrs., g r. 6s., y.r. 36*l.*	375
Canonbury.—4, Canonbury-gr., u.t. 13¾ yrs., g.r. 6*l.* 10s., y.r. 38*l.*	145
Kilburn.—Palmerston-rd., l.g.r. 25*l.* 4s., u.t. 58¼ yrs., g.r. nil	435
Caledonian-road.—Freeling-st., l.g. rents 40*l.*, u.t. 39¼ yrs., g.r. 4*l.*	560
Dulwich.—217, Friern-rd., f., e.r. 70*l.*	810

By HUNTER & HUNTER.

South Kensington. — Ennismore-gdns., l.g. rents 112*l.*, u.t. 38¾ yrs., g.r. 15*l.*	1,855
Ennismore-gdns., f.g. rents 70*l.*, reversion in 38 yrs.	3,220
Belgravia.—Lowndes-st., l.g.r. 68*l.*, u.t. 24 yrs., g.r. 10*l.*	810
Hyde Park.—Westbourne-cres., l.g. rents 77*l.*, u.t. 33 yrs., g.r. 2*l.*	1,260
45, Sussex-gdns., u.t. 32½ yrs., g.r. 15*l.*, p.	1,570

By FREDK. WARMAN.

Highbury.—37, Balfour-rd., u.t. 45 yrs., g.r. 6*l.* 6s., y.r. 46*l.*	425
43, Liberia-rd., u.t. 84 yrs., g.r. 7*l.* 10s., e.r. 44*l.*	410
11, Compton-rd., u.t. 41 yrs., g.r. nil, e.r. 60*l.*	640
De Beauvoir Town.—102, De Beauvoir-rd., u.t. 17 yrs., g.r. 4*l.* 10s., y.r. 32*l.*	210

By BARBER & SON (at Shifnal)

Shifnal, Salop.—"Idsall House" and 1 a. 3 r. 15 p., f., y.r. 70*l.*	1,800
The "Park Farm," 38 a. 2 r. 1 p., f.	2,600
The "Cottage" and 0 a. 2 r. 33 p., f., y.r. 25*l.*	500
The "Lodge Hill Farm," 241 a. 1 r. 19 p., f.	9,000

December 7.—By FOSTER & CRANFIELD.

Hammersmith.—Sinclair-rd., f.g. rents 45*l.*, reversion in 71 yrs	1,050
25 and 27, Girdler's-rd., u.t. 61 yrs., g.r. 4*l.*, y.r. 115*l.*	870
Bethnal Green.—32, Bethnal Green-rd. (s.), u.t. 55 yrs., g.r. 46*l.*, y.r. 230*l.*	2,230

By WALTER HALL.

Willesden Green.—Market-pl., f.g.r. 54*l.*, reversion in 94 yrs.	1,350

By W. MAURICE-JONES.

Finchley.—36, Derby-av., u.t. 96½ yrs., g.r. 5*l.* 5s., e.r. 28*l.*	250

By MARK LIELL & SON.

Limehouse.—Galt-st., c.g.r. 5*l.*, reversion in 10 yrs.	920
Canning Town.—217, Barking-rd., f., y.r. 54*l.*	850
East Ham.—73, Central Park-rd. (s.), f., y.r. 35*l.*	375
Bow.—11, Malmesbury-rd., u.t. 67 yrs., g.r. 4*l.*, y.r. 30*l.*	355
46, Wellington-rd., u.t. 59 yrs., g.r. 3*l.*, w.r. 33*l.* 16s.	200
Manor Park.—20 and 22, Durham-rd., u.t. 72 yrs., g.r. 8*l.*, y.r. 47*l.*	440

By WILLIS, CROUCH, & LEE.

De Beauvoir Town.—162 and 164, Hertford-rd., u.t. 45½ yrs., g.r. 26*l.*, y.r. 72*l.*	395
Fulham.—91, Bishop's-rd. (s.), f., y.r. 45*l.*	335
Norwood.—49 and 51, Alexandra-rd., u.t. 50 yrs., g.r. 11*l.* 10s., y.r. 73*l.*	445

By WYATT & SON (at Chichester).

Fishbourne, Sussex. — "Langley Cottage," 3 a. 0 r. 21 p., c., p.	670
South Bersted, Sussex.—"Four Acres Town Cross," 3 a. 3 r. 13 p., f.	700
Yapton, Sussex.—"Sampson Croft," 1 a. 2 r. 8 p., f.	410

December 8.—By J. BARTON & CO.

Notting-hill.—50, Wheatstone-rd., u.t. 61½ yrs., g.r. 8*l.*, w.r. 41*l.* 12s.	345
Enfield Highway.—1 to 10, George's Cottages, u.t. 73 yrs., g.r. 25*l.*, w.r. 106*l.* 12s.	280

Canning Town.—8, 10, and 12, Wightman-st., u.t. 95½ yrs., g.r. 15*l.*, w.r. 78*l.* £460

By GEORGE BILLINGS.

Bethnal Green.—3 to 23 (odd), Minerva-st.; 1 to 23 (odd), Centre-st.; 20, Felix-st.; 2 to 36 (even), Cambridge-circus, area 36,000 ft., f., e.r. 1,379*l.* 10,500

By G. F. FRANCIS.

Bognor, Sussex.—1, Marine-parade, f., y.r. 100*l.* 1,800
Richmond.—Friars Stile-rd., "Sussex House," u.t. 79½ yrs., g.r. 25*l.*, y.r. 150*l.* 1,800

By HY. HOLMES & CO.

Tottenham Court-rd.—22, Tottenham-st., f., p. 1,110
Marylebone.—13, Harewood-av., u.t. 36½ yrs., g.r. 1*l.*, y.r. 50*l.* 550

By R. B. SIM & SON.

Blackheath.—37, Foyle-rd., u.t. 93½ yrs., g.r. 6*l.* 6s., y.r. 36*l.* 385
Ilford.—12, Wellesley-rd., f., e.r. 38*l.* 555

By STIMSON & SONS.

Old Kent-road.—28, Marlborough-rd. ("Blemheim Laundry"), f., y.r. 70*l.* 1,500
Camberwell.—3, 4, and 5, Surrey-pl., f., w.r. 58*l.* 10s. 430
Edmondsey.—221, 223, and 225, St. James'-rd., u.t. 27½ yrs., g.r. 10*l.* 10s., w.r. 107*l.* 18s. 660
Greenwich.—13, Stockwell-st. (s.), f., y.r. 55*l.* 550
Pimlico.—44 and 46, Bessborough-pl., u.t. 18 yrs., g.r. 16*l.*, y.r. 60*l.* 305
Stepney.—2, 4, and 6, Gold-st., u.t. 19 yrs., g.r. 9*l.*, w.r. 110*l.* 10s. 375
New Charlton, Kent.—East-st., i.g.r. 68*l.*, u.t. 25½ yrs., g.r. 43*l.* 8s. (including reversions) 555

By C. C. & T. MOORE.

St. George's East.—Cable-st., f.g.r. 10*l.*, reversion in 15½ yrs. 530
Stepney.—8, Agnes-st., u.t. 56½ yrs., g.r. 4*l.*, y.r. 32*l.* 315
80 and 82, Eastfield-st., f., w.r. 46*l.* 16s. .. 340
Commercial-road East.—10 and 12, Hardinge-st., f., w.r. 49*l.* 8s. 500
St. George's East.—4 to 16 (even), Denmark-st., f., w.r. 260*l.* 14s. 2,725
Poplar.—11, Follett-st., u.t. 45 yrs., g.r. 3*l.* 5s., w.r. 33*l.* 16s. 255
Plaistow.—24, Stratford-rd., f., w.r. 26*l.* 240
Camberwell.—21 to 31, 41 to 49 (odd), Crown-st., f., w.r. 453*l.* 14s. 1,650
Woodford Green, Essex.—Barclay Oval, four plots of freehold land 340
Woodford.—5, Denmark-rd., w.r. 23*l.* 8s., and plot of land in rear, p., f. 280

December 9.—By PRICE, ARROW, & TAYLOR.

Clapham.—21 and 25, Nansen-rd., u.t. 84½ yrs., g.r. 13*l.*, w.r. 106*l.* 12s. 705
Hornsey Rise.—109, Hanley-rd., u.t. 64 yrs., g.r. 7*l.* 7s., y.r. 42*l.* 320

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent: r. for rent; f. for freehold: c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental: w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

TO CORRESPONDENTS.

W. H. M. (Below our limit).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

MEETINGS.

FRIDAY, DECEMBER 16.

Institution of Mechanical Engineers.—(1) Paper to be read and discussed, entitled "Heat Treatment Experiments with Chrome-Vanadium Steel," by Capt. H. Riall Sankey and Mr. J. Kent-Smith; (2) Messrs. Seaton and Jude's Paper on "Impact Tests on the Wrought Steels of Commerce," which was read at the last meeting, will be further discussed jointly with the above Paper. 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. R. H. Lee Pennell on "Folkestone Harbour: Cylinder-Sinking at the Root of the Old Pier." 8 p.m.

MONDAY, DECEMBER 19.

Royal Institute of British Architects.—Messrs. Lacy W. Ridge and J. S. Gibson on "Architecture and Building Acts." 8 p.m

Liverpool Architectural Society.—Mr. John Murray on "Scotch Plaster Work of the XVIth and XVIIth Centuries."

TUESDAY, DECEMBER 20.

Architectural Association Camera and Cycling Club.—Mr. Arnold Mitchell on "The Study of Mediæval Architecture." 8 p.m.

Society of Arts (Applied Art Section).—Mr. T. G. Jackson, R.A., on "Street Architecture." 8 p.m.

Institute of Sanitary Engineers, Ltd. (Lectures in Practical Sanitary Science).—Mr. N. W. Hoskins on "The Atmosphere and Meteorology." 7 p.m.

Institution of Civil Engineers (Ordinary Meeting).—Paper to be further discussed: "The Construction of a Concrete Railway-Viaduct," by Mr. Arthur Wood-Hill and Mr. E. Davy Pain, B.A.

WEDNESDAY, DECEMBER 21.

Builders' Foremen and Clerks of Works' Institution.—(1) Annual Meeting of Directors. 7 p.m. (2) Ordinary Meeting of the Members. 8 p.m.

Institution of Civil Engineers.—Students' visit to the Printing Works of Messrs. Wm. Clowes & Sons, Ltd., Duke-street, Stamford-street, S.E.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks.	1 12 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 8 0	" " "
Facing Stocks ...	2 10 0	" " "
Shippers	2 8 0	" " "
Flettons	1 8 0	" at railway depôt.
Red Wire Cuts ...	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire ...	4 4 0	" " "
Do. Bullnose	4 10 0	" " "
Best Stourbridge Fire Bricks.....	4 8 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	13 0 0	" " "
Headers	12 0 0	" " "
Quoins, Bullnose, and Flats.....	17 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers...	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamferred, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	" " "
Quoins, Bullnose, and Flats.....	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers...	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints	14 0 0	" " "
Second Quality White and Dipped Salt Glazed	2 0 0	less than best.

	s. d.	
Thames and Pit Sand.....	7 0	per yard, delivered.
Thames Ballast.....	6 0	" "
Best Portland Cement	29 0	per ton, "
Best Ground Blue Lias Lime	20 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	" "
PORTLAND STONE (20 ft. average)— Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 1	" "
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2 2½	" "

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks...	2 4	"
Red Corsehill "	2 5	"
CloseburnRedFreestone	2 0	"
Red Mansfield "	2 4	"

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2 10	"
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super.
6 in. rubbed two sides ditto, ditto	2 6	"
3 in. sawn two sides slabs (random sizes)	0 11½	"
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	"
1½ in. to 2 in. ditto, ditto	0 6	"

STONE (*continued*).

HARD YORK—	s. d.	
Scappled random blocks	3 0	per ft. cube, deld. rly. depôt.
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "
3 in. sawn two sides (slabs random sizes)	1 2	" "
2 in. self-faced random flags	0 5	" "

	s. d.	
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt.
" " " 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
" " " 3 in. do.	1 2½	" "

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 " "	13 17 6	" "
20 × 10 first quality "	13 0 0	" "
20 × 12 " " "	13 15 0	" "
16 × 8 " " "	7 5 0	" "
20 × 10 best blue Portmadoc	12 12 6	" "
16 × 8 " "	6 12 6	" "
20 × 10 best Eureka unfading green .	15 17 6	"
20 × 12 " "	18 7 6	"
18 × 10 " "	13 5 0	" "
16 × 8 " "	10 5 0	" "
20 × 10 permanent green	11 12 6	" "
18 × 10 " "	9 12 6	" "
16 × 8 " "	6 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles .	42	0 per 1000 at rly. depôt.
Hip and Valley tiles ...	3	7 per doz. " "
Best Brosely tiles.....	50	0 per 1000 " "
Do. Ornamental tiles	52	6 " " "
Hip and Valley tiles ...	4	0 per doz. " "
Best Ruabon red, brown, or brindled do. (Edwards)	57	6 per 1000
Do. Ornamental do	60	0 " " "
Hip tiles	4	0 per doz. " "
Valley tiles	3	0 " " "
Best Red or Mottled Staffordshire do. (Peakes).....	51	9 per 1000
Do. Ornamental do.....	54	6 " " "
Hip tiles	4	1 per doz. " "
Valley tiles	3	8 " " "
Best "Rosemary" brand plain tiles.....	48	0 per 1000
Best Ornamental tiles	50	0 " " "
Hip tiles	4	0 per doz. " "
Valley tiles	3	8 " " "
Best "Hartshill" brand plain tiles, sand faced.	50	0 per 1000
Do. pressed.....	47	6 " " "
Do. Ornamental do	50	0 " " "
Hip tiles	4	0 per doz. " "
Valley tiles	3	6 " " "

WOOD.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	15 10 0	16 10 0
Deals: best 3 by 4.....	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in....	9 0 0	9 10 0
2 in. by 4½ in. and 2 in. by 5 in....	8 10 0	9 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.) ...	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.....	18 10 0	20 0 0
" " 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.....	18 0 0	19 10 0
Battens.....	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.....	14 10 0	16 0 0
Battens.....	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.....	13 0 0	14 0 0
Battens.....	10 0 0	11 0 0
White Sea and Petersburg :— First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	9 10 0	10 10 0
Pitch-pine: deals.....	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0

WOOD (*continued*).

JOINERS' WOOD (*contd.*)—	£ s. d.	£ s. d.
Yellow Pine—First, regular sizes	40 0 0	upwards.
Oddments	28 0 0	"
Seconds, regular sizes	30 0 0	"
Yellow Pine oddments	25 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6	0 3 6
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube.	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
¾ in. do. do.	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	21 0 0
American Whitewood Planks, per ft. cube	0 4 0	—
Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, £ s. d.	or delivered Railway Vans, per ton. £ s. d.
Rolled Steel Joists, ordinary sections	5 15 0 ...	6 15 0
Compound Girders, ordinary sections	7 12 6 ...	8 15 0
Angles, Tees and Channels, ordinary sections	7 7 6 ...	8 7 6
Flitch Plates	7 15 0 ...	8 5 0
Cast Iron Columns and Stanchions including ordinary patterns	6 12 6 ...	7 15 0

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars	6 15 0 ...	7 5 0
Staffordshire Crown Bars, good merchant quality	7 5 0 ...	7 15 0
Staffordshire "Marked Bars"	9 10 0 ...	—
Mild Steel Bars	8 5 0 ...	8 15 0
Hoop Iron, basis price	8 15 0 ...	9 0 0
" " Galvanized	16 10 0 ...	—
("And upwards, according to size and gauge.)		
Sheet Iron, Black—		
Ordinary sizes to 20 g.	9 0 0 ...	—
" " 24 g.	10 0 0 ...	—
" " 26 g.	11 15 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 0 0 ...	—
Ordinary sizes to 22 g. and 24 g.	12 10 0 ...	—
" " 26 g.	13 10 0 ...	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	15 0 0 ...	—
" " 22 g. and 24 g.	15 10 0 ...	—
" " 26 g.	17 0 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8 ft. 20 g.	12 0 0 ...	—
" " 22 g. and 24 g.	12 10 0 ...	—
" " 26 g.	13 5 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 0 0 ...	—
" " " 26 g.	13 5 0 ...	—
Cut nails, 3 in. to 6 in.	8 10 0 ...	9 0 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	15 10 0 ...	—
Pipe in coils	16 0 0 ...	—
Soil pipe	18 10 0 ...	—
Compo pipe	18 10 0 ...	—
ZINC—Sheet—		
Vieille Montagne ....ton	30 10 0 ...	—
Silesian	30 5 0 ...	—
COPPER—		
Strong Sheet....per lb.	0 0 10 ...	—
Thin "	0 0 11 ...	—
Copper nails "	0 0 10 ...	—
BRASS—		
Strong Sheet "	0 0 9½ ...	—
Thin "	0 0 10½ ...	—
TIN—English Ingots "	0 1 4½ ...	—
SOLDER—Plumbers' "	0 0 6½ ...	—
Tinmen's "	0 0 8 ...	—
Blowpipe "	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
" fourths	2d. " "
21 oz. thirds	3¾d. " "
" fourths	3d. " "
26 oz. thirds	4¾d. " "
" fourths	3¾d. " "
32 oz. thirds	5¾d. " "
" fourths	5d. " "
Fluted Sheet, 15 oz.	3¼d. " "
" 21 oz.	4¼d. " "
¼ Hartley's Rolled Plate	2d. " "
⅜ " " "	2¾d. " "
½ " " "	2¾d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 5
" " " in barrels	"	0 1 6
Boiled " " in drums	"	0 1 8
" " " in pipes	"	0 1 7
" " " in barrels	"	0 1 8
" " " in drums	"	0 1 10
Turpentine, in barrels	"	0 3 4
" in drums	"	0 3 6
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry	"	19 5 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVI. (January to June, 1904) was given as a supplement with the issue for July 9.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

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*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BRIGHTON. — For repairs and improvements to Crown-street Infants' Council School, for the Education Committee. Messrs. T. Simpson & Son, surveyors, 17, Ship-street, Brighton :—

J. & W. Simmonds	£245 0 0	T. Keywood	£221 14 8
W. Olliver	242 0 0	Sattin & Evershed, Freshfield-road*	220 0 0
G. Lynn & Sons	225 0 0		
G. R. Lockyer	224 10 0		

CHELL.—For enlargement of the workhouse, for the Wolstanton and Burslem Guardians. Messrs. W. F. Slater and W. H. Walley, joint architects, Burslem :—

J. Gallimore, Newcastle, Staff.* £10,994

CAMBRIDGE.—For workshops, Carlyle-road, Cambridge, for the Cambridge Scientific Instrument Co., Ltd. Messrs. George Baines & R. Palmer Baines, architects, 5, Clement's-inn, Strand, London, W.C. :—

	Est. A.	Est. G.	Total.
C. North	£1,175	£606	£1,781
Battley, Sons, & Holness	1,107	577	1,684
F. Gough & Co.	1,124	534	1,658
W. Sindall	1,065	533	1,598
W. Bell & Sons	1,054	518	1,572
Coulson & Lofts	1,016	490	1,506
W. Saint	1,015	485	1,500
Kerridge & Shaw	985	451	1,436
E. Willmott & Sons, Hope Works, Mill-road, Cambridge*	900	440	1,340

CHELL.—For electric lighting at the workhouse, for the Wolstanton and Burslem Guardians. Mr. Ashton Bremner, electrical engineer, Market-buildings, Burslem :—

Boilers : The Stirling Boiler Co., Motherwell*	£550 0 0
Engine and Dynamo : McClure & Whitfield Co., Stockport*	764 7 0
Switch Board : Electric and Ordnance Co., Ltd., Birmingham*	183 19 8
Wiring : E. M. Evans, Manchester*	644 5 8
Accumulators : The Pflüger Co., London*	297 2 6
Arc Lamps : Crompton & Co., London*	148 0 0

[Over seventy tenders received.]

COWPEN (Northumberland).—For laying 660 lineal yds. of whin kerb from Kitty Brewster to Bebside, for the Urban District Council. Mr. R. Grieves, Surveyor, Seaforth-street, Blyth :—

J. Shannon	£165 3 6	McLaren & Co., Christon Bank*	£128 8 9
G. E. Simpson	148 5 0		
J. Robson	137 14 6		

COWPEN (Northumberland).—For making-up portion of Bishopton-street, Crofton, for the Urban District Council. Mr. R. Grieves, Surveyor, Seaforth-street, Blyth :—

G. E. Simpson	£118 5 0	McLaren & Co., Christon Bank*	£112 14 8
J. Shannon	117 12 8		
J. Robson	114 11 4		

CRANHAM.—For 320 ft. of granite kerb, Lower-road, for the Romford Rural District Council. Mr. G. Lapwood, Highway Surveyor, Victoria-road, Romford :—

Thompson & Wilkinson	£320 17 0	H. F. White	£265 0 0
Cutler & Co.	286 13 4	W. Griffiths & Co., Ltd.	253 6 8

DARTFORD (Kent).—For remaking roads and laying new tramway lines at Joyce Green Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief :—

T. C. Starkey	£5,616 11 6
Muirhead, Greig, & Matthews	5,500 0 0
Kavanagh, Stephen, & Co.	4,476 0 0
Enness Bros.	4,200 0 0
E. Iles, jun.	3,810 0 0
Wilkinson Bros.	3,550 0 0
W. Griffiths & Co., Ltd.	3,360 0 0
T. Adams	3,174 0 0
Fry Bros.	3,090 0 0
J. C. Trueman	2,945 0 0
Grounds & Newton	2,790 0 0
Road Maintenance and Stone Supply Co., Ltd.	2,598 0 0
W. H. Wheeler, 235, Blackfriars-road, Southwark, S.E.*	2,140 0 0

DORCHESTER.—For alterations to No. 17, South-street, for Mr. W. H. C. Thurman. Mr. F. Maltby, architect and surveyor, South-street, Dorchester :—

C. E. Slade	£178	Watts Bros., Dorchester*	£168
R. Davis & Son	173		

EASKY (Ireland).—For sewerage works, for the Dromore West Rural District Council. Mr. C. B. Jones, engineer, Sligo :—

D. Kilduff	£299	O. Kilcullen	£279
P. Giblin	287	M. Kiveny, Lugmore, Easky, co. Sligo*	253
T. Mullany	286		

FRINTON-ON-SEA.—For construction of about 1,600 yds. lineal of sea walling, promenade, and sloping and draining cliffs, etc. Mr. E. M. Bate, Engineer and Surveyor to the Council :—

	Concrete wall, etc.	Alternative Tender if Kentish rag stone facing.	Alternative Tender if columnar basalt stone facing.
G. Webb & Co.	£43,584	£48,864	£48,924
C. J. Shelbourne & Co.	40,537	40,943	44,490
G. Lawson	38,649	40,304	39,770
Case Syndicate	37,279	41,889	42,850
W. Rigby & Co.	36,245	38,581	38,945
W. Manders	33,811	34,968	35,167
B. Firth & Co.	33,303	34,926	37,994
J. Dickson	33,062	32,907	33,471
T. W. Pedrette	32,473	35,464	36,061
Pethick Bros.	31,564	34,513	34,280
Harrison & Sons	30,451	31,826	33 584
T. C. Starkey	30,354	39,463	46,918
W. Gradwell & Co.	29,941	31,076	31,582
T. T. Deane	29,789	31,918	31,575
Wilson, Border, & Co.	28,951	28,589	29,006
J. & T. Binns	28,566	31,664	32,062
G. Wimpey & Co.	27,992	30,860	30,959
A. Fasey & Son	27,572	29,672	29,862
J. Moran & Son	27,261	28,826	28,941
H. & M. Patrick	26,967	28,988	29,157
C. W. Killingback & Co.	26,579	27,771	27,467
W. L. Wallis & Co.	26,408	28,063	29,107
Pedrette & Co.	26,280	26,802	27,498
G. Bell	25,884	28,130	29,673
G. Double	25,424	27,087	27,264
G. Rutter	25,365	27,825	27,908
G. A. Watson & Co.	23,834	27,134	26,238
G. K. Waghorn, Hull	23,437*	25,082	25,695

TENDERS—*Continued on page* 651.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*Designs for School, etc., at Caversham	County of Oxford Education Comtee.	.....	Feb. 1-05

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Colouring and Painting Schools	Bradford Education Committee ..	Education Office (Architect's Department), Bradford	Dec. 16
Pipe Work and Valves	Middlesbrough Electricity Comtee.	H. M. Taylor, Borough Electrical Engineer, Middlesbrough	Dec. 17
700 tons of Cast-Iron Pipes, 24 in. diameter	Glasgow Corporation	J. R. Sutherland, 45, John-street, Glasgow	do.
Pipes to Hot-water Cylinders at Workhouse	Tadcaster Guardians	H. E. Lovell, Master of Workhouse, Tadcaster	do.
Sinking a Well and Erecting Pump, Brideswell	Athlone Guardians	P. J. Prendergast, Engineer, Northgate-street, Athlone	do.
12-in. and 8-in. Grit Curb	Manchester Paving Committee	Chief Clerk, Highways Department, Town Hall, Manchester	do
Engineering Work at Baths	Bradford Corporation	F. E. P. Edwards, City Architect, Bradford	Dec. 19
Extension of Sludge Press Chamber, Dalmarnock	Glasgow Corporation	Public Works Office, City Chambers, 64, Cochrane-street, Glasgow	do.
Electric Lighting of Bridgeton Library	do.	J. R. Rhind, Architect, 67, Hope-street, Glasgow	do.
Making-up Streets and Lanes	Plymouth Corporation	J. Paton, Borough Engineer, Municipal Offices, Plymouth	do.
2,000 yds. of Cast-Iron Pipes	Warrington Paving, etc., Committee	Borough Surveyor, Town Hall, Warrington	do.
Disinfecting Liquid	Chorley Corporation	J. Mills, Town Clerk, Town Hall, Chorley	do.
Strengthening 2 Girder Spans, Queen's-road Bridge	Manchester Corporation	City Surveyor's Office, Town Hall, Manchester	do.
Main Drainage and Sewage Disposal	Radstock U.D.C.	D. Balfour & Son, Engineers, 1, Victoria-st., Westminster, S.W.	do.
Cast-Iron Pipes	Halifax Waterworks Committee	R. J. Hartley, Waterworks Engineer, Gibbet-street, Halifax	do.
Lead Piping and Pig Lead	do.	do.	do.
Gun Metal Fittings	do.	do.	do.
Cottage at Ardgye	.....	J. Wittet, Architect, Elgin	Dec. 20
1,600 yds. of Iron Water Pipes at Ardgye	.....	do.	do.
Motor Steam Fire Engine	London C.C.	Clerk of the Council, Spring-gardens, S.W.	do.
Steam Dynamo	Swindon Corporation	J. G. Griffin, Engineer, Electricity Works, Swindon	do.
Gasworks	Kirkby-in-Ashfield U.D.C.	R. G. Shadbolt, Engineer, Gasworks, Grantham	do.
Road Works, Albury Park-road, Tynemouth	Tynemouth Corporation	J. F. Smillie, Borough Surveyor, Tynemouth	do.
Painting, etc., Workhouse at Rothwell Haigh	Hunslet Guardians	F. W. Mee, Clerk, Union Offices, Hunslet, Leeds	do.
Chapel, Tonypandy	Com. of Moriah Welsh Baptist Ch.	J. Rees, Architect, Pentre	do.
9-in. Sewer, Church-road	Aldershot U.D.C.	F. C. Uren, Engineer, Municipal-buildings, Aldershot	do.
12-in. and 9-in. Surface-water Drain, North-lane	do.	do.	do.
Motors for Machine Shops	Manchester Tramways Committee	J. M. M'Elroy, 55, Piccadilly, Manchester	do.
Gearing for Machine Shops	do.	do.	do.
Roadmaking and Paving Works	Willesden District Council	Council's Engineer, Dyne-road, Kilburn, N.W.	do.
Police Station, Sutherland-road, Longton	Staffordshire Standing Joint Com.	A. R. Wood, Architect, Tunstall	Dec. 21
Alterations to Premises	Cymmer Workmen's Club and Inst.	At the Club	do.
Methodist Church and Schools, Brighouse	Methodist New Connection	J. Wills & Sons, Architects, Victoria Chambers, Derby	do.
Sinking Well at Three Bridges, Sussex	Crawley & District Waterworks Co.	Secretary, High-street, Crawley, Sussex	do.
Making-up Private Streets	Enfield U.D.C.	R. Collins, Surveyor, Public Offices, Enfield	do.
Making-up Whitehall Park-road (South)	Chiswick U.D.C.	J Barclay, Surveyor, Town Hall, Chiswick	do.
Tramp Wards, Belmont Classification House	West Derby Guardians	C. H. Lancaster, Arch., Brougham-ter., West Derby-rd., Liverpool	do.
Two Cottages, Castle-street, Fochabers	.....	A. Duncan, Cowfords, Fochabers	do.
Dressing Boxes at Baths, Gloucester-street	Stroud U.D.C.	Surveyor to the Council, Town Hall, Stroud	do.
Painting and Decorating Baths at Gloucester-street	do.	do.	do.
Shelter and Ladies' Lavatory, Victoria-gardens	Portland U.D.C.	R. S. Henshaw, Engineer and Surveyor, New-road, Portland	do.
Installing Gas in Workhouse, Damer's-road	Dorchester Guardians	Union Offices, 4, Damer's-road, Dorchester	do.
Making-up Roads	Southend-on-Sea Corporation	E. J. Elford, Borough Surveyor, Southend-on-Sea	Dec. 22
Gymnasium at Cathedral School, Llandaff	Rev. J. S. Stevenson Moore	G. E. Halliday, F.R.I.B.A., Cardiff	do.
Two Compressors and Engines Combined	Stockport Gas, etc., Committee	S. Meunier, Engineer, Portwood Gasworks, Stockport	do.
Addition, etc., of Offices in Town Hall, Blackrock	Blackrock U.D.C.	G. L. O'Connor, C.E., 198, Great Brunswick-street, Dublin	do.
Cornish Steam Boiler and Building Alterations	Runcorn Guardians	G. F. Ashton, Clerk, 71, High-street, Runcorn	do.
Making-up Streets	Saltburn-by-the-Sea U.D.C.	G. S. L. Bains, Surveyor, Saltburn-by-the-Sea	do.
Outfall Sewer from Alfreton-road to Basford	Nottingham Corporation	A. Brown, City Engineer, Guildhall, Nottingham	do.
Pair of Semi-detached Houses, West-lane, Baildon	.....	J. Harper Bakes, Architect, Calverley-chbrs., Victoria-sq., Leeds	do.
Private Street Works	Levenshulme U.D.C.	J. Jepson, Surveyor, Guardian Chambers, Tiviot Dale, Stockport	do.
House, Haggersgate, Whitby	Missions to Seamen's Institute	E. H. Smales, A.R.I.B.A., 5, Flowergate, Whitby	do.
Movable Partition at Peel Green Council School	Eccles Education Committee	E. Parkes, Town Clerk, Eccles	Dec. 23
Schoolroom and Hall at Ebbw Vale	Vicar and Wardens of Christ Church	The Vicarage, Ebbw Vale	do.
■New Coastguard Buildings at Langley	Admiralty	Works Dept., Admiralty, 21, Northumberland-avenue, W.C.	do.
Colliery Stores	Garforth Colliery Owners	The Owners of Garforth Colliery, near Leeds	Dec. 24
1,650 yds. of 2-in. Cast-Iron Pipes	North Walsham U.D.C.	J. S. Empson, Clerk, North Walsham	do.
Ironmongery and Plumbers' and Builders' Materials	Edinburgh Parish Council	A. Ferrier, Clerk, Castle-terrace, Edinburgh	do.
Warehouse at Electric Works, West Strand, Preston	Messrs. Dick, Kerr, & Co.	Garlick, Sykes, & Catterall, Architects, 33, Winckley-sq., Preston	Dec. 26
New Road from Lichfield-street to Darwall-street	Walsall Corporation	Borough Surveyor's Office, Bridge-street, Walsall	Dec. 27
High Tension Switch Gear	Rochdale Corporation	Lacey, Sillar, & Leigh, Engineers, 2, Queen Anne's-gate, S.W.	do.
Sewage Works Extension	Swinton and Pendlebury U.D.C.	H. Entwisle, Surveyor, Council Offices, Swinton, Manchester	do.
Cast-Iron Water Pipes	Runcorn U.D.C.	J. Wilding, Surveyor, Town Hall, Runcorn	do.
Surface-water Sewers at Fishersgate	Southwick U.D.C.	G. W. Warr, Surveyor, Council Offices, Southwick	do.
Repairs at No. 1, Sheep-street	Stratford-upon-Avon Town Council	R. Dixon, Borough Surveyor, Municipal Offices, Stratford-on-Avon	do.
■Road-making, etc., at Hammersmith New Workhouse	Parish of Hammersmith	Giles, Gough, & Trollope, 28, Craven-street, Strand, W.C.	do
Four Iron Fire Escape Staircases at Workhouse	Cheltenham Guardians	J. Villar, Architect, 2, Essex-place, Cheltenham	Dec. 28
Widening and Reconstructing Bridges	Northumberland C.C.	J. A. Bean, County Surveyor, The Moot Hall, Newcastle-on-Tyne	do.
Sewerage Works, Northampton-road, etc.	Market Harborough U.D.C.	H. G. Coales, Engineer, Council Offices, Market Harborough	do.
Keeper's Lodge, Barbon Manor, Kendal	Lord Shuttleworth	J. F. Curwen, F.R.I.B.A., 26, Highgate, Kendal	do.
Water Supply Pipe, Allanton	New Milns Town Council	W. R. Copland, C.E., 146, West Regent-street, Glasgow	do.
Alterations, etc., of Pt. of Old Police Stn., Brooke-st.	Prestwich Guardians	T. Worthington & Son, Architects, 46, Brown-street, Manchester	Dec. 29
Entrance Drive at Cadeleigh	Rev. W. French, M.A.	E. H. Harbottle & Son, Architects, County Chambers, Exeter	do.
Technical School	Coleraine U.D.C.	W. & M. Given, Architects, Diamond, Coleraine	do
Comb. Hose Carriage, Chemical Fire-engine & Escape	Waterloo-with-Seaforth U.D.C.	F. Spencer Yates, Surveyor, Town Hall, Waterloo, Liverpool	do.
200 tons of Guernsey Granite Spalls	Greenwich Guardians	Union Offices	do.
3,000 tons per annum of Gas Oil, Ilchester Wharf	Birkenhead Corporation	T. O. Paterson, Gas Engineer, Thomas-street, Birkenhead	do.
Chapel at Glyn-Neath	Welsh Calvinistic Methodists	W. Jones & W. D. Morgan, Victoria Chbs., Pentre, Rhondda Valley	Dec. 30
Farm Houses at Maes-Evan, Crossnant, etc.	.....	D. Jenkins, F.R.I.B.A., Llandilo	Dec. 31
Stables, etc., at Glansannan, etc.	.....	do.	do.
Council School for 302 Children, Hunmanby	East Riding Education Committee	Police Station, Filey	do.
Twenty-five Houses at Blackwood, Mon.	Blackwood Plas-road Building Club	W. Dowdeswell, Architect, Treharris	Jan 2-05
Sewerage Disposal Works	Mansfield Woodhouse U.D.C.	G. & F. W. Hodson, Engineers, Loughborough	do.
*Erection and Completion of Fire Brigade Station, etc.	Borough of Hornsey	Borough Engineer, Municipal Offices, Southwood-la., Highgate, N.	do.
Materials for Elec. Equip. of Hammersmith, etc., Ry.	G.W.R.	Kennedy & Jenkin, Engineers, 17, Victoria-street, London, S.W.	Jan. 3
Cricklade Water Supply (Reservoir, etc.)	Cricklade & Wootton Bassett R.D.C.	F. Redman, Engineer, 34, Wood-street, Swindon, Wilts	do.
Cricklade Water Supply (Pipes, etc.)	do.	do.	do.
30-in. Cast-Iron Pumping Main	Tottenham, etc., Drainage Com.	P. E. Murphy, Engineer, 712, High-road, Tottenham, N.	do.
*Additions Press House, etc., at Markfield-road, N.	do.	do.	do.
Making-up Eastwood-road, Bramley	Hambledon R.D.C.	F. Smallpeice, Clerk, High-street, Guildford	do.
Alterations, etc., to Schoolmaster's Ho., Parson Drove	Isle of Ely C.C. Education Com.	H. Farr Simpson, County Surveyor, Wisbech	do.
Fittings of University Bldgs., Western Bank, Sheffield	Building Committee of College	Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	Jan. 5
Laying, etc., 6,360 yds. of Water Mains	Scunthorpe U.D.C.	A. M. Cobbam, Engineer to Council, Home-street, Scunthorpe	Jan. 6
Laying, etc., 12,700 yds. of Water Mains	do.	do.	do.
Carting and Hauling Mains, etc.	do.	do.	do.
*Erection of Post-office, Chelsea	Commissioners of H.M. Works, etc.	J. Wager, H.M. Office of Works, Storey's-gate, S.W.	Jan. 9
Offices, Board-room, etc., John-street and Boro'-rd.	Sunderland & S. Shields Water Co.	T. R. Milburn, F.R.I.B.A., 20, Fawcett-street, Sunderland	do.
Seven Water Spans of Esk Viaduct, N. of Floriston	Caledonian Railway Co.	Divisional Engineer, Prince's-street Station, Edinburgh	do.
*Underground Sanitary Convenience	Wandsworth Borough Council	Council's Surveyor, 41, High-street, Wandsworth, S.W.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Dwelling House at Ringmore, Shaldon	Mr. J. Harvey	S. Segar, Architect, 24 & 26, Union-street, Newton Abbot	Jan. 10
Five Labourers' Cottages, Monastery, Powerscourt	Rathdown No. 2 R.D.C.	P. Cunniam, Clerk, Loughlinstown, Ireland	Jan. 11
One Cottage, Glaskenny, Powerscourt	do.	do.	do.
Two Cottages, Kilmalin, Powerscourt	do.	do.	do.
One Cottage, Fassarve, Delgany	do.	do.	do.
*600 tons of Quenast, etc.	Borough of Kingston-on-Thames	Borough Surveyor, Municipal Offices, Kingston-on-Thames	do.
*Steam Boilers, etc.	C.B. of Belfast	Town Clerk's Office, Belfast	Jan. 12
*Heating of Pavilions, etc.	do.	do.	do.
*Electric Light Installation	do.	do.	do.
Extension of Waterworks, Bettws-y-Coed	Bettws-y-Coed U.D.C.	Church Hill, Bettws-y-Coed	do.
Embankment, etc., at Ffynon Llugwy	do.	do.	do.
Finishing Machine, Ruchill Wash-house, Possilpark	Glasgow Corporation	P. Fyfe, 23, Montrose-street, Glasgow	Jan. 19
Twenty Cottages	W. Hancock & Co., Ltd.	J. T. Robinson, Colliery Office, Dipton	No date
Rebuilding Ship Hotel, Crane-street, Pontypool	Trustees of the late G. H. Errington	Johnson & Hutchins, Architects, Risca	do.
Roadworks, Colchester	Cumberland C.C.	Baker & May, Head-street, Colchester	do.
Additions, etc., to Lock-up, Aspatria		G. D. Oliver, F.R.I.B.A., County Architect, Carlisle	do.
Pull. Down & Re-erect. Masham Restaurant, Bradfd.		374, The "Yorkshire Post," Bradford	do.
Restoration of Church, Wanborough, Wilts	The Committee	The Vicar	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*Surveyor's General Assistant	Borough of Fulham	110*l.* per annum	Dec. 27
*Assistant Superintendent of Works	Straits Settlements R.W. Dept.	360*l.* per annum	Dec. 28
*Two Senior Draughtsmen	M.A.B.	2*l.* 10*s.* per week	do.
*Clerk of Works	Staffordshire Education Committee	3*l.* per week	Dec. 29

Those marked with an asterisk (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xix.

TENDERS.—*Continued from page* 649.

HARROGATE.—For street works in roads off Otley-road and Bower-road, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor, Harrogate. Quantities by Engineer:—

Roads off Otley-road.

E. Long, 5, Albert-terrace, Starbeck*.. £879 12 6

Back Road at rear of Nos. 4 to 34, West Terrace-avenue.

G. Parsons, Harlow Hill, Harrogate*.. £275 8 10

Roads off Bower-road.

Barker & Co., Lowther-arcade, Harrogate* £211 7 2

HENSTRIDGE (Somersetshire).—For 720 yds. of cast-iron mains. Mr. Cyrus Combes, engineer, Tisbury:—

S. Ambrose	£303 0 0	Smith & Marchant, Shepton Mallett	£178 5 6
W. H. Smith & Son	195 19 0		
P. Tryhorn & Son	195 0 0		

HURLFORD.—For waterworks, for Kilmarnock District Committee. Mr. J. Sturrock, jun., engineer, Victoria Buildings, 65, King-street, Kilmarnock:—

Murray & Milne, Prestonpans* £2,920 0 6

IPSWICH.—For erecting at the workhouse, Woodbridge-road, a temporary iron structure, for the Guardians. Messrs. Brown & Burgess, architects, Princess-street, Ipswich:—

For Iron Structures.

Fenn & Co., Ipswich £321

[Messrs. Fenn will also provide the drainage, lighting, heating, and water supply, and other matters not included in the specification, at an estimated price of £79.]

KING'S NORTON.—For private street works, Ashfield-avenue, King's Heath, and Kitchener-road, Selly Wick, for King's Norton and Northfield Urban District Council. Mr. A. W. Cross, Surveyor, 23, Valentine-road, King's Heath:—

J. White, jun., Boulton-road, Handsworth } Ashfield-avenue .. £548 11 8; Kitchener-road .. 320 19 6

LARNE (Ireland).—For erecting a library at the corner of Victoria-street and Thorndale-avenue, for the Urban District Council. Mr. N. Fitzsimons, architect, 13, Lombard-street, Belfast. Quantities by Messrs. W. H. Stephens & Son, Belfast:—

McRoberts & Armstrong.	£2,340 0 0	H. Keith	£2,162 0 0
J. Ferris	2,296 10 0	W. McNeill & Sons	2,152 11 7
J. Lees	2,295 0 0	W. Dowling, 108, Cromwell-road, Belfast*	2,020 0 0
Courtney & Co.	2,189 0 0		
J. Kidd	2,176 11 6		
T. McMilan	2,165 0 0		

LEYTONSTONE.—For alterations and improvements to the Cann Hall-road Schools (Wanstead Slip), for the Education Committee of Leyton District Council. Mr. W. Jacques, Architect, 2, Fen-court, Fenchurch-street, E.C.:—

Oak Building Co., Ltd.	£2,499 0 0	G. J. Hosking	£1,869 0 0
R. Woollaston & Co.	2,249 0 0	Wisdom Bros.	1,800 0 0
A. J. Sheffield	2,230 10 6	C. North	1,749 7 0
F. W. Harris & Co., Ltd.	2,097 0 0	F. J. Coxhead	1,717 0 0
Myall & Upson	2,085 0 0	W. Gregar & Son	1,675 0 0
H. M. Patrick	1,943 0 0	A. E. Symes	1,633 0 0
Stimpson & Co.	1,897 0 0	H. C. Horswill	1,613 0 0
S. Kind	1,885 0 0	W. J. Maddison	1,509 0 0
		W. Manders, Leyton*	1,487 0 0

LONDON.—For repairs to Nos. 1 to 24, Knott's-terrace, Tanner's-hill, Deptford, and 47, Tanner's-hill, for the Deptford Borough Council. Mr. T. Corfield, Borough Surveyor, 493, New Cross-road, S.E.:—

F. J. Lillwood, 16, Alpha-road, New Cross, S.E.* £185 14

LONDON BOARD OF EDUCATION TENDERS.

Haggerston, Gopsall-street (Cleaning).

(First Competition.)

G. S. S. Williams & Son	£450 0	J. Stewart	£295 5
H. Runham Brown	441 0	J. Grover & Son	283 0
W. Silk & Son	363 0	Marchant & Hirst	261 0
C. Dearing & Son	304 5	R. Woollaston & Co.	210 0

(Second Competition.)

G. S. S. Williams & Son	£450 0	J. Grover & Son	£272 0
H. Runham Brown	441 0	H. Bouneau, 1A & 2, Royal Victor-place, Old Ford*	233 0
J. Stewart	295 5		
W. Silk & Son	291 10		

Walworth, "Michael Faraday" (Cleaning during Easter holidays, 1905).

T. L. Green	£296 0	H. J. Williams	£206 13
Maxwell Bros., Ltd.	241 10	J. & C. Bowyer	206 0
W. V. Goad	238 0	Rice & Son, 15A, Stockwell-road*	202 0
W. Sayer & Son	212 0		

Camberwell, N., Leipsic-road (Cleaning interior).

(*a*) That the resolution accepting the tender of Mr. W. Read, amounting to £197, for cleaning the interior of the Leipsic-road school, be rescinded.

(*b*) That the tender of Messrs. Maxwell Bros., Ltd., amounting to £229, for cleaning the interior of the Leipsic-road school during the Christmas holidays, be accepted.

Islington, E., Highbury Truant School (Heating apparatus, etc., for swimming bath and gymnasium).

J. Yetton & Co.	£504 0	Brightside Foundry & Engineering Co., Ltd.	£384 0
W. G. Cannon	499 0	Strode & Co.	383 0
J. Grundy	497 0	J. Richmond & Co., Ltd., 30, Kirby-st., Hatton-gdn.*	371 15
Wippell Bros. & Row	437 0		

Hackney, S., Brunswick-street (School for mentally defective children).

Todd & Newman	£4,937	Clarke & Bracey	£3,664
Marchant & Hirst	4,450	W. Shurmur & Sons, Ltd.	3,636
G. Neal	4,190	J. Grover & Son	3,544
W. M. Dabbs & Son	4,158	Patman & Fotheringham, Ltd.	3,516
A. Porter	4,155	J. & M. Patrick, Point Pleasant, Wandsworth*	3,461
Killby & Gayford	4,141		
McCormick & Sons	4,038		
J. Simpson & Son	3,940		
E. Lawrence & Sons	3,802		
L. H. & R. Roberts	3,673		

[The architect's estimate comparable with these tenders is £3,485.]

LONDON.—For erecting a museum building at the rear of the Public Library, Walworth-road, S.E., for the Southwark Borough Council. Mr. Arthur Harrison, Borough Engineer, Town Hall, Walworth-road, S.E.:—

Pattinson & Sons	£1,964 0 0	G. Parker	£1,601 4 4
J. W. Jerrom	1,833 0 0	J. Smith & Sons, Ltd.	1,569 0 0
Blyton & Sons	1,816 15 9	General Builders, Ltd.	1,509 0 0
A. Hudson & Co.	1,760 0 0	W. Wallis	1,504 14 1
F. & H. F. Higgs	1,731 0 0	B. E. Nightingale	1,490 0 0
J. Marsland & Sons	1,658 0 0	A. W. Coles	1,424 13 10
Astley & Stormer	1,644 0 0	R. & E. Evans	1,421 13 8
W. J. Renshaw	1,626 0 0	T. Edge	1,347 0 0
Gouch & Co.	1,621 0 0	G. J. Newton, Southwark Bridge-rd.*	1,337 14 0
		W. E. Westgate	1,274 0 0

LLANDYRI.—For enlargement and renovation of Llandyri Church, for the Rev. David Jones. Mr. W. Griffiths, architect, Llanelly. Quantities by architect:—

D. Williams	£450	P. Phillips, Trimsaran*	£350
T. Evans & Sons	430		
T. P. Jones	430		

LONDON.—For constructing about 1,847 ft. lineal of new roads, etc., for the owners of Orange Hill Estate, Edgware. Messrs. Pollard & Tingle, engineers, 31, Old Queen-street, Westminster, S.W. Quantities by engineers:—

A. B. Champniss	£2,693 13 7	F. Fowles	£2,177 18 5
T. W. Pedrette	2,677 9 10	W. Halsey & Son	2,131 10 2
W. Stevens	2,651 15 7	M. S. Kitteringham	2,100 0 0
J. Dickson	2,550 0 0	H. Williams	2,069 2 0
B. Nowell & Co.	2,416 0 0	T. Wakon, jun.	2,045 17 11
Wilkinson Bros.	2,409 0 0	S. Kavanagh & Co.	1,983 0 0
J. H. Harny & Co.	2,388 1 6	J. Trueman	1,979 0 0
T. W. Marsh	2,377 10 2	W. Neave & Son	1,957 0 0
G. Wimpey & Co.	2,318 10 0	R. Ballard, Ltd.	1,937 0 0
C. W. Killingback & Co.	2,195 18 7	G. R. Mann	1,850 0 0
		T. Adams	1,846 9 9

LONDON.—For pulling down and rebuilding a Hop Warehouse on the site of Nos. 46 and 48 Red Cross-street, Southwark, S.E., for Mr. Alex. P. Haig. Mr. George A. Lansdown, architect, 9, Regent-street, Waterloo-place, S.W.:—

J. Mowlem & Co., Ltd.	£9,450	Kirk & Kirk	£8,586
H. Burman & Sons	9,283	T. G. Sharpington	8,578
C. Ansell	9,173	H. L. Holloway	8,462
H. & E. Lea	8,990	R. & E. Evans	8,317
J. Marsland & Sons	8,935	W. Downs	8,199
Battley, Sons & Holness	8,827	G. Newton	8,195
		Johnson & Co.	8,175
		B. E. Nightingale*	7,782

MERTHYR.—For private street works at Ernest-street, Plymouth-road, for the Merthyr Tydfil Urban District Council. Mr. T. F. Harvey, Surveyor to Council:—

J. F. Seal	£136 12 7	L. Griffiths	£127 0 10
M. L. Jenkins	134 0 0	Jones & Davies	117 19 6
Evans & Waters	130 12 1	J. Evans	113 12 1

MIDDLETON.—For alterations and additions, etc., at Middleton Tower, Norfolk. Mr. H. J. Green, architect and Diocesan Surveyor, 31, Castle-meadow, Norwich:—

J. Kinninmont & Son	£6,483 0 0	R. Shanks	£4,934 0 0
J. Cracknell	5,449 0 0	Tash, Langley, & Co.	4,804 3 6
J. S. Smith	5,328 14 4	A. F. Foreman, King's Lynn†	4,662 12 11
R. Dye	5,024 0 0		
J. Youngs & Son	4,937 0 0		

RADCLIFFE-ON-TRENT.—For erecting shops, assembly hall, stores, etc., for the Co-operative Society. Messrs. A. R. Calvert & W. R. Gleave, architects, Low Pavement, Nottingham:—

W. Hickling, Radcliffe-on-Trent* £1,473 15 2

[Highest of sixteen tenders, £1,935; lowest, £1,461.]

REIGATE (Surrey).—For the erection of Colley Cottage. Mr. Money Marsland, architect, 68, Great Tower-street, E.C. Quantities by the architect:—

Marsland & Sons	£4,385	Maddison	£4,159
Bagaley & Sons	4,300	Minter	4,157
Dolman & Co	4,250	Buckland & Waters*	4,064

RIDGEWAY.—For erecting a house, High-lane, Ridgeway, near Killamarsh, for Mr. P. Martin, sen. Mr. E. Allsopp, architect, Worksop. Quantities by architect:—

Carpenter & Co.	£835	0	0
C. Leverton	800	0	0
J. Hindley	777	0	0
Ilett & Sons	755	0	0
G. Wright	747	0	0
Bowles Bros.	703	12	0
I. Fidler & Sons	675	0	0
Pinder Bros. & Boul	£658	0	0
J. Drabble	631	10	7
J. Holmes	625	4	0
W. Hemstalk	624	7	10
Bolsover Bros.	583	0	0
H. Fidler	565	14	0
J. Staveley & Co.	560	0	0
Lund & Swann, Eckington*	560	0	0

ROSS.—For erecting a board room, etc., at the Union Workhouse, for the Guardians. Mr. A. H. Pearson, architect, Ross. Quantities by architect:—

George Hill, Ledbury, Herefordshire* £788 17

[Four other tenders.]

SELLY OAK.—For erecting public baths, Tiverton-road, for King's Norton and Northfield Urban District Council. Mr. A. W. Cross, Surveyor and Engineer, 23, Valentine-road, King's Heath:—

T. A. Cole & Son, Selly Oak, near Birmingham .. £8,990

SOUTHALL.—For surface water drain, North-road, for the Southall-Norwood Urban District Council. Mr. R. Brown, Engineer and Surveyor, Public Offices, Southall. Quantities by Engineer:—

G. Hirst & Sons	£264	T. Free & Sons	£186
P. Smith	228	A. & B. Hauson	184
Foster Bros.	203	J. Jackson	181
Killingback & Co.	202	W. H. Wheeler	166
R. Spencer	201	T. Watson, Southall*	155
H. Morecroft	197		

SOUTHALL.—For sewerage and surface water drainage, Dormers Wells-lane, for the Southall-Norwood Urban District Council. Mr. R. Brown, Engineer and Surveyor, Southall:—

G. Hirst & Sons	£2,002	T. Free & Sons	£1,523
Killingback & Co.	1,958	A. & B. Hauson	1,517
Foster Bros.	1,628	J. Jackson	1,353
H. Morecroft	1,616	T. Watson, Southall*	1,316
W. H. Wheeler	1,608	P. Smith	1,136
R. Spencer	1,528		

SOUTHALL.—For sewerage and surface water drainage, Western-road, for the Southall-Norwood Urban District Council. Mr. R. Brown, Engineer and Surveyor, Public Offices, Southall:—

Killingback & Co.	£1,170	J. Jackson	£744
H. Morecroft	837	W. H. Wheeler	699
Foster Bros.	803	P. Smith	695
G. Hirst & Sons	798	T. Watson, jun.	654
R. Spencer	790	A. & B. Hauson, Southall*	647
T. Free & Sons	751		

SWANLEY (Kent).—For new store accommodation at White Oak School, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

J. J. Richards	£490	0	
Mordey & Myer	370	0	
T. Pearce	346	18	
T. Cole	317	18	
Gardner & Hazell	299	0	
A. W. Jaggers	285	0	
J. Lonsdale	£284	0	
T. Knight	281	0	
W. & D. Wilkins, Durban-road, Watford*	252	0	

UPMINSTER, HORNCHURCH, AND CRANHAM.—For 3,200 ft. of granite kerb, for the Romford Rural District Council. Mr. G. Lapwood, Highway Surveyor, Victoria-road, Romford:—

British Paving & Granite Co.	£335	0	0
T. W. Marsh	320	13	9
J. W. Logan	313	6	8
W. E. Westgate	282	15	0
Wilson, Border, & Co.	275	10	0
R. A. Bonnett	£273	6	8
A. W. Porter	246	13	4
I. Jackson	265	0	0
P. Infanté	260	0	0
B. W. Glenny, Romford*	253	5	0

WALLSEND.—For erecting schools, for the Education Committee. Mr. W. H. Knowles, architect, 37, Grainger-street, Newcastle-on-Tyne:—

W. Worley, jun.	£15,888	17	8
J. & W. Lowry	15,875	0	0
R. Veitch & Son	15,368	0	0
E. T. George	15,200	0	0
T. Lumsden	15,200	0	0
Davison & Bolam	15,049	14	10
S. F. Davidson	14,995	0	0
Elliott Bros.	14,990	13	0
W. Kennedy	14,905	0	0
R. Smith	14,806	0	0
J. C. Hope	14,716	4	2
R. C. Whitfield	£14,603	13	10
N. Ritchie	14,600	0	0
Glen & Moffitt	14,553	9	1
S. Sheriff	14,503	14	6
J. Mackarg	14,447	10	6
W. Hall	14,402	6	2
J. W. Braithwaite	14,262	10	9
J. & W. Simpson	14,135	0	0
G. Bain	14,052	0	0
T. Hunter	13,999	5	0
J. & G. Douglass	13,842	11	7
W. T. Weir	13,831	0	0

WOODFORD (Essex).—For main road works (Contract No. 1), for the Urban District Council. Mr. W. Farrington, Surveyor, Council Offices, Woodford Green:—

W. J. Logan	£3,124	0	0
T. W. Marsh	2,680	16	7
T. Adams	2,573	13	7
E. Rogers & Co.	2,563	0	0
Moss & Sons	2,525	0	0
W. Griffiths & Co.	2,508	3	6
O. T. Gibbons	£2,442	0	0
Free & Sons	2,406	14	0
Parsons & Parsons	2,387	12	7
W. & C. French, Buckhurst Hill*	2,360	4	4

WOODFORD (Essex).—For road improvements (Contract No. 2), for the Urban District Council. Mr. W. Farrington, Surveyor, Council Offices, Woodford Green. Quantities by Surveyor:—

W. J. Logan	£1,595	0	0
T. W. Marsh	1,303	15	0
W. Griffiths & Co.	1,290	0	7
T. Adams	1,273	9	0
Free & Sons	1,260	11	1
O. T. Gibbons	1,191	0	0
Moss & Sons	1,190	0	0
Parsons & Parsons	£1,165	5	8
E. Rogers & Co.	1,143	0	0
W. & C. French, Buckhurst Hill*	1,125	9	9

WREXHAM.—For 290 yds. of 9-in. stoneware sewer, etc., for the Rural District Council. Mr. J. Price-Evans, C.E., Argyle-chambers, Wrexham. Quantities by engineer:—

G. Halbert	£159	H. A. Jones	£136
T. Rogers	159	R. Williams	134
E. Robinson	149	T. H. Simmons, Gwersylit, Wrexham*	108
W. Barrick	145		

WREXHAM.—For metalling and making good Edward-street, for the Corporation. Mr. John England, Borough Surveyor. Quantities by Surveyor:—

G. Halbert	£242	J. W. Harris, Shrewsbury*	£139
W. Hughes	224		
H. A. Jones	185		

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